Fig 1
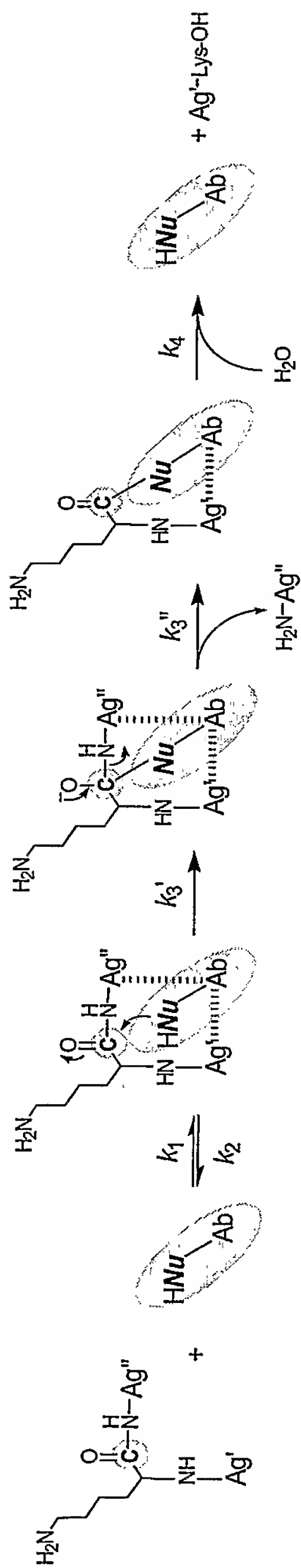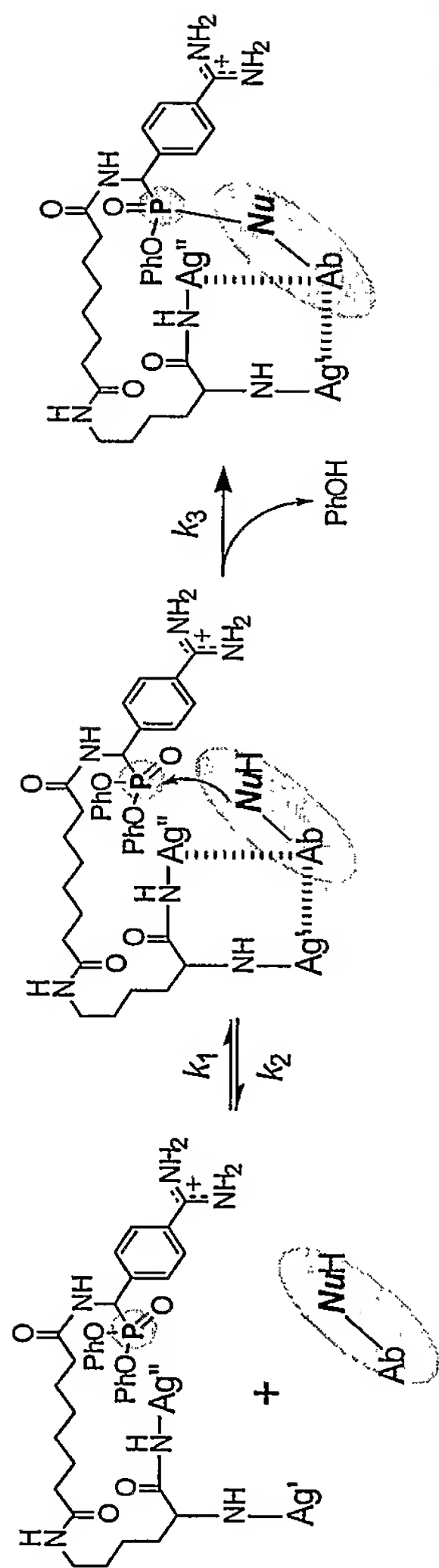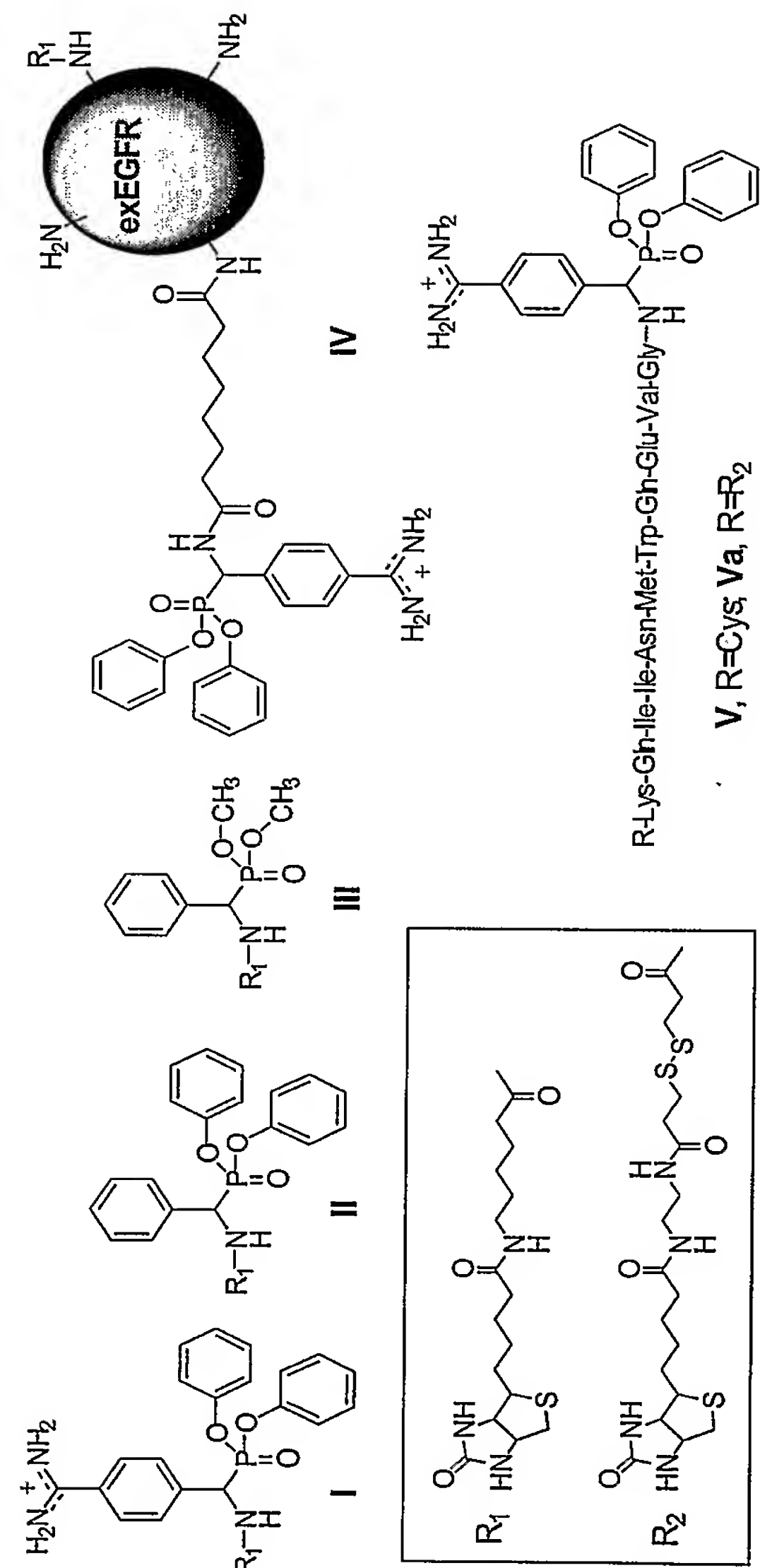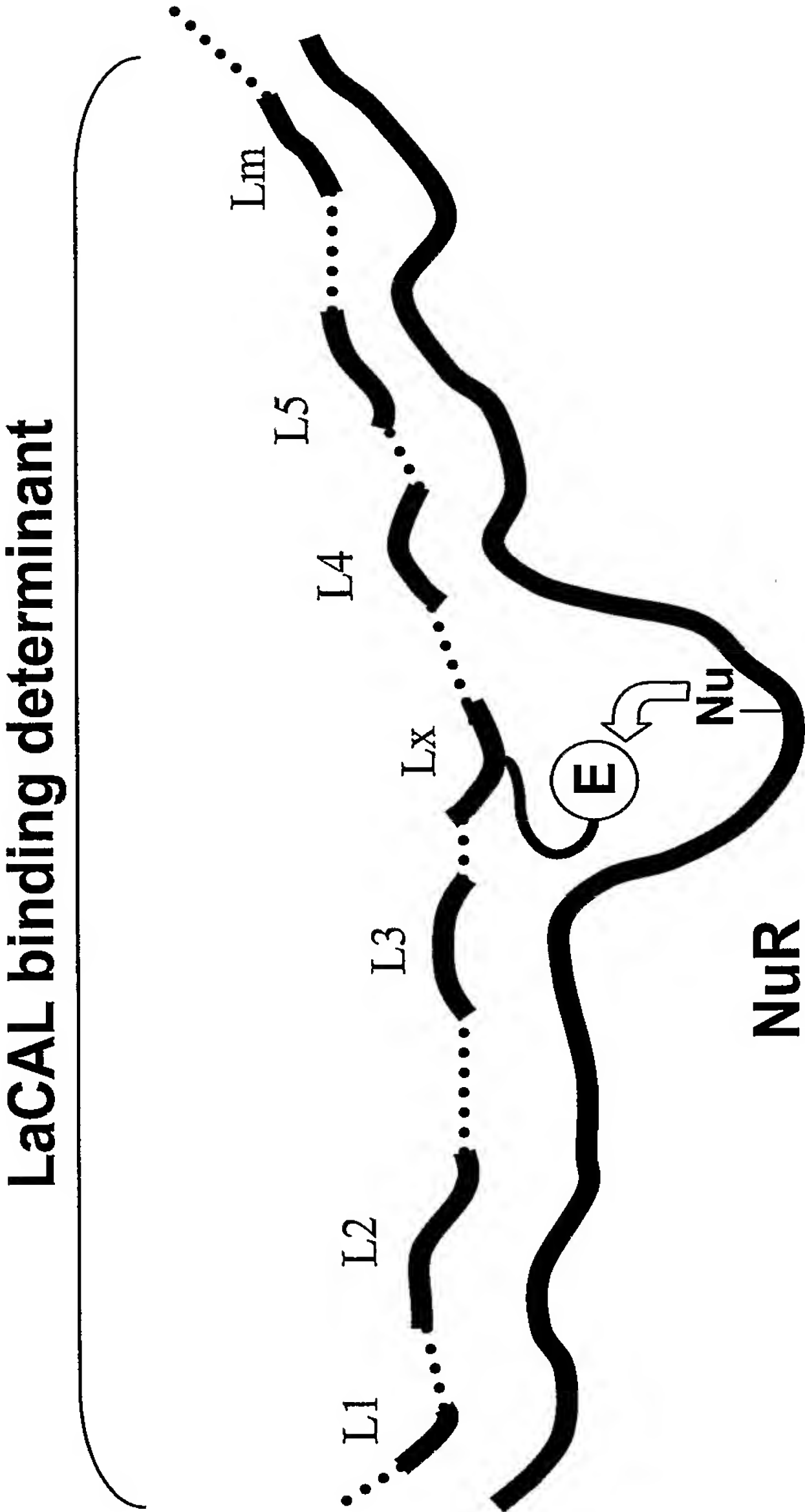
Fig 2

Fig 3

Catalysis and covalent binding energies of proteins

Fig 4
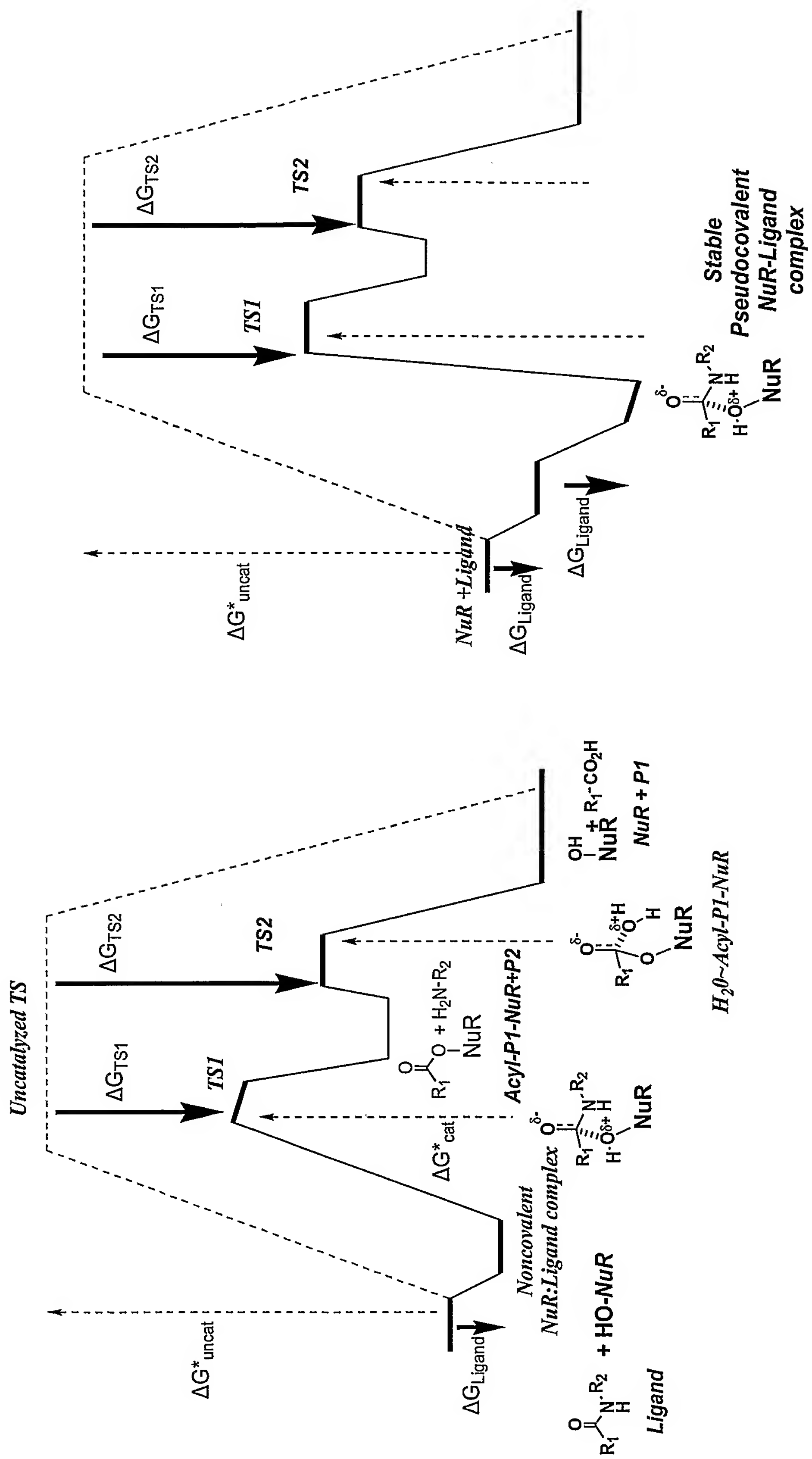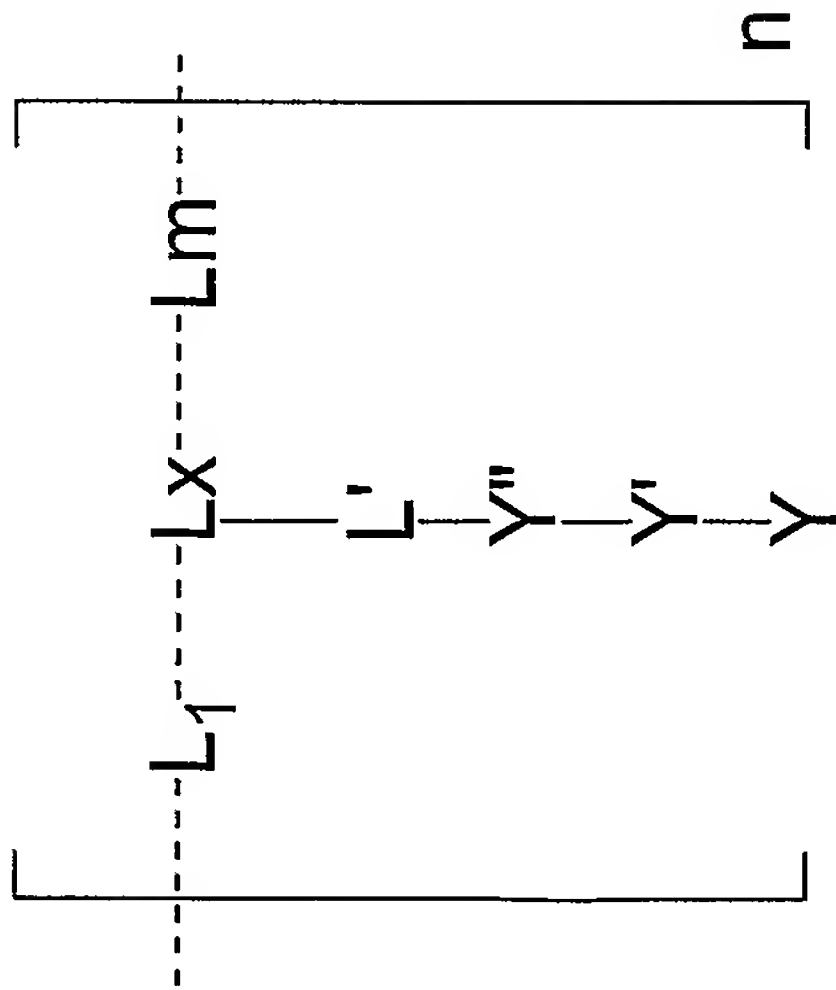
General structure of LaCAL

L'-Y''-Y'-Y, Example 1

L' = β-carboxyl group of Asp

Y'' = ethyl amine group

Y = phosphonate monophenylester group

L'-Y''-Y'-Y, Example 3

L' = sulfhydryl group of Cys

Y'' = γ-maleimidobutyryl group

Y' = 1-amino-4-guanidinobutyl group

Y = boronic acid group

L'-Y''-Y'-Y, Example 2

L' = ε-amino group of Lys

Y'' = suberic acid residue

Y' = (4-amidinophenyl)methylamine group
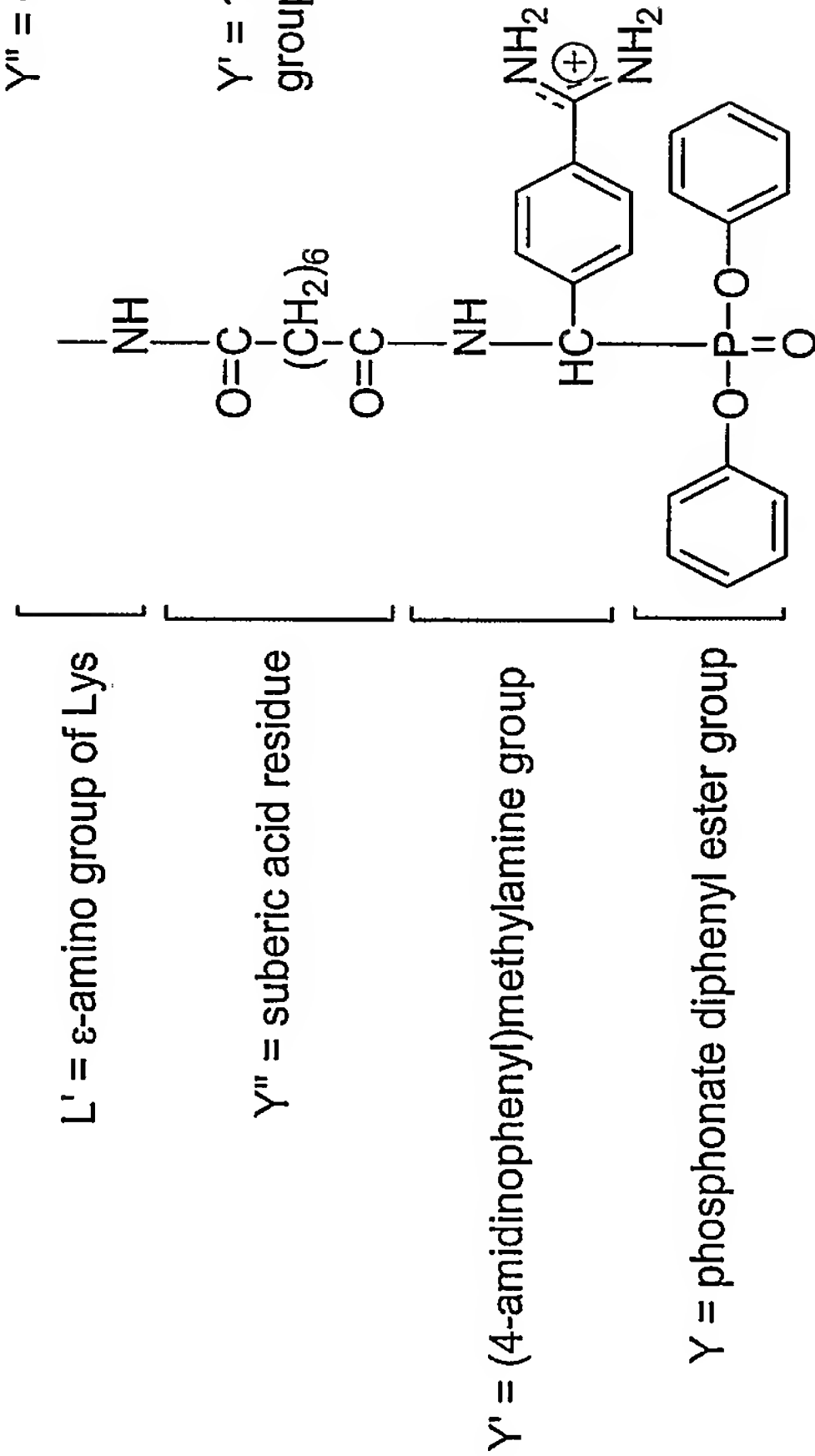
Y = phosphonate diphenyl ester group
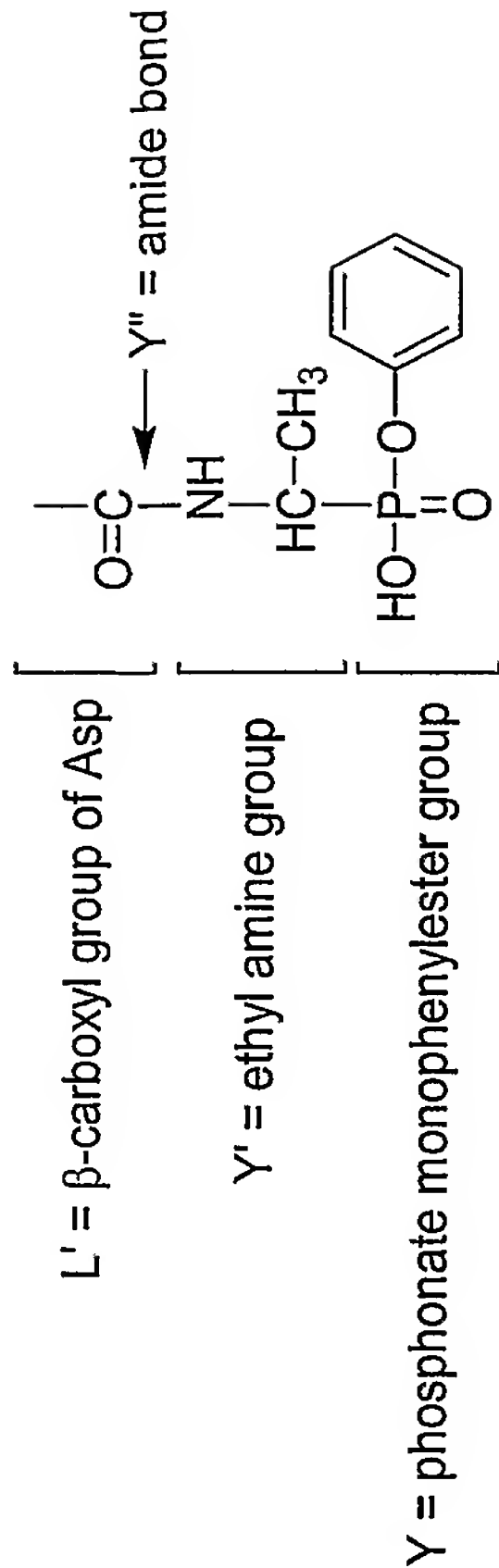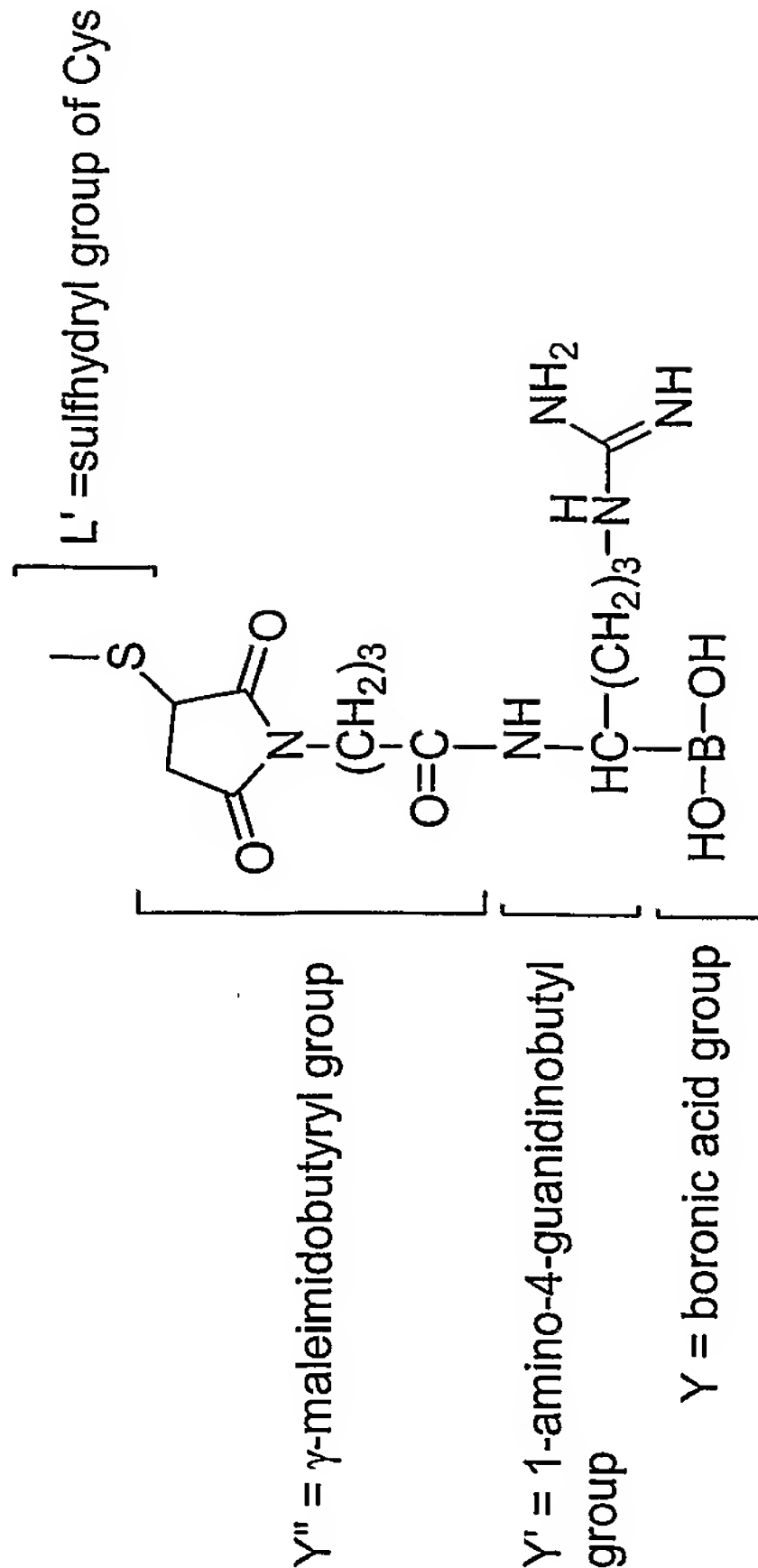
Fig 5A
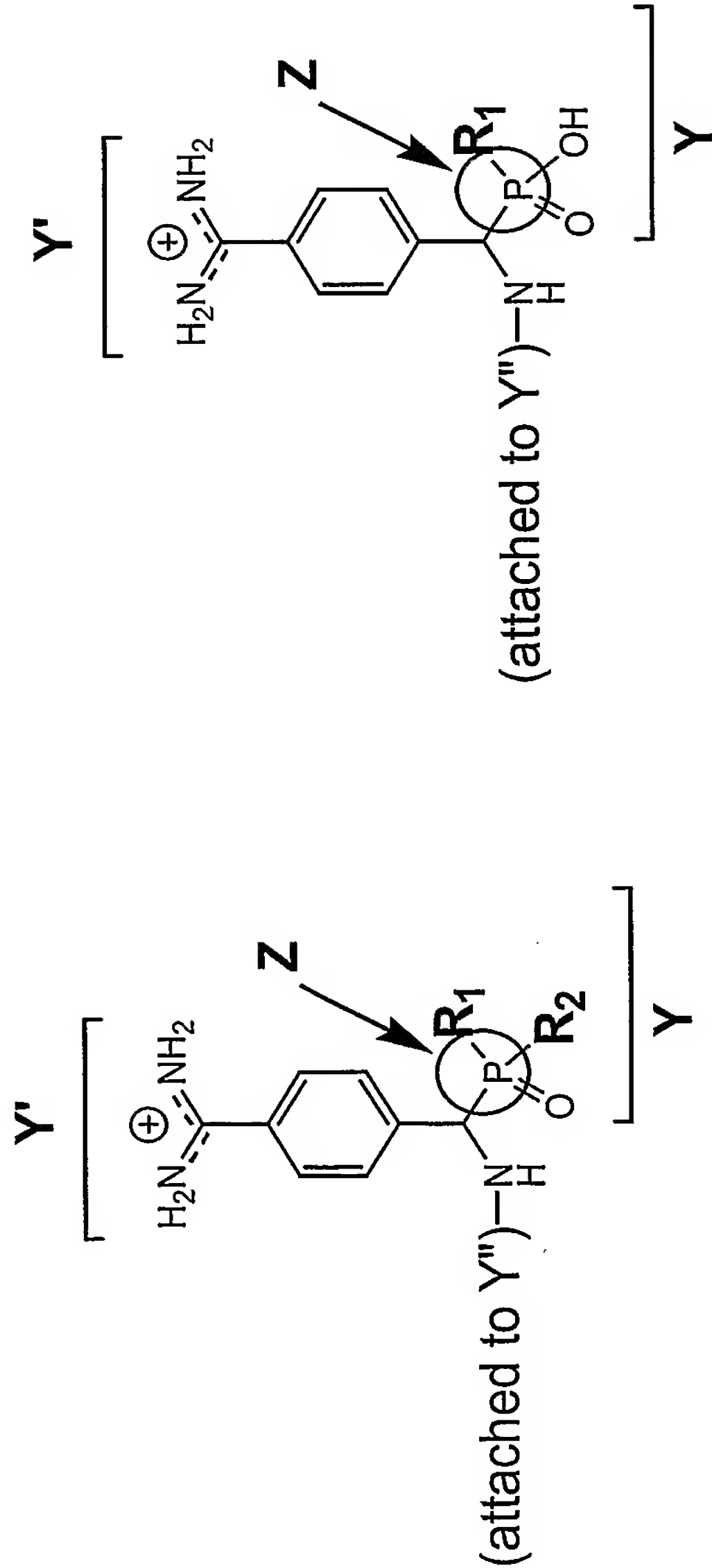
LaCAL Z-R pair: Example 1

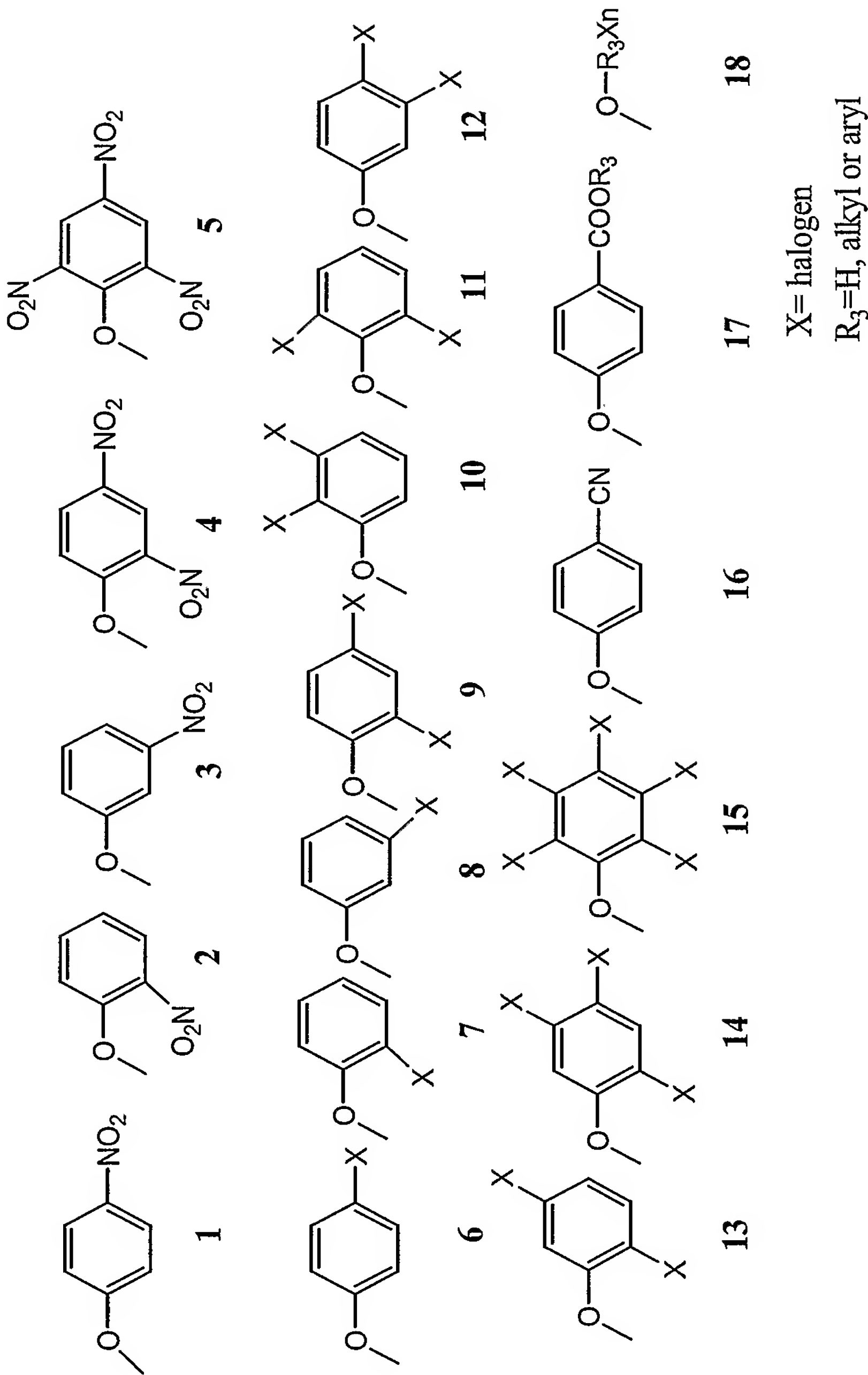LaCAL Z-R pair: Example 2

Fig 5B

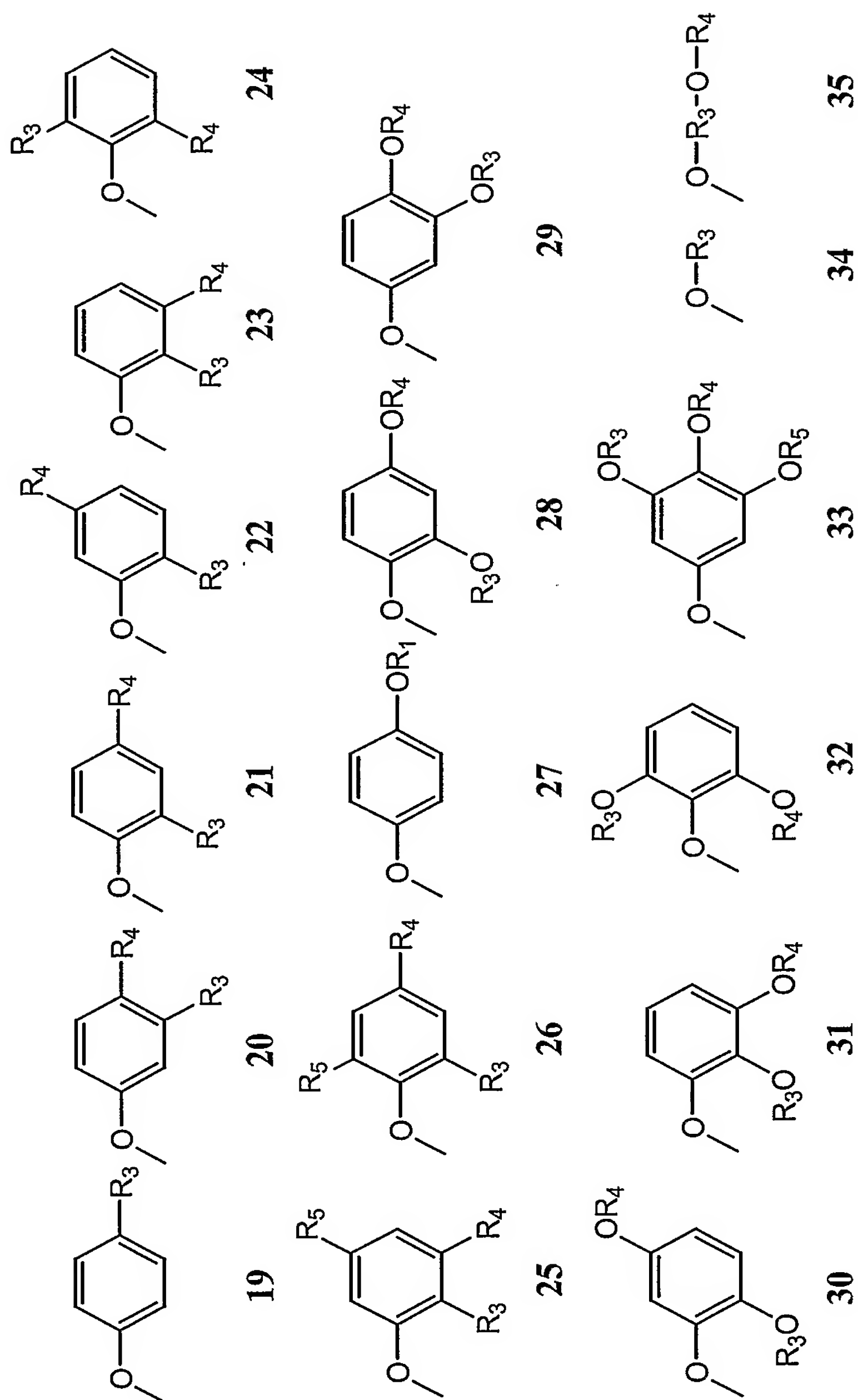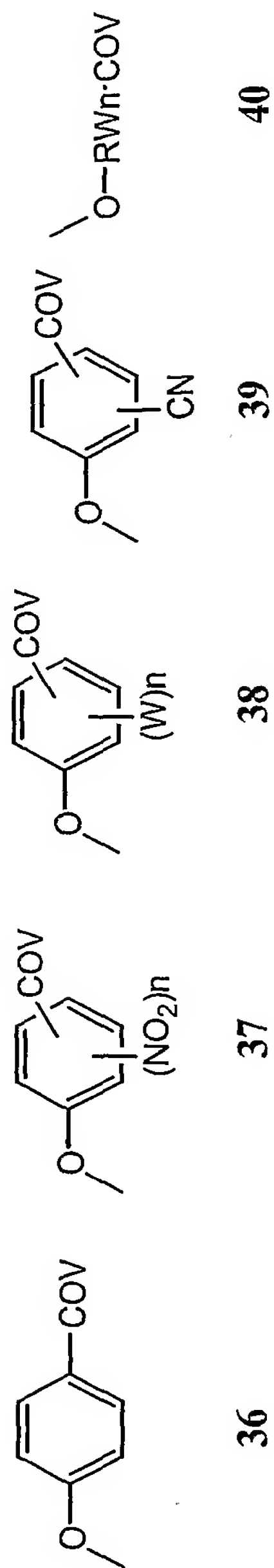

X= halogen
R₃=H, alkyl or aryl

Fig 5C

R_n = H, alkyl or aryl
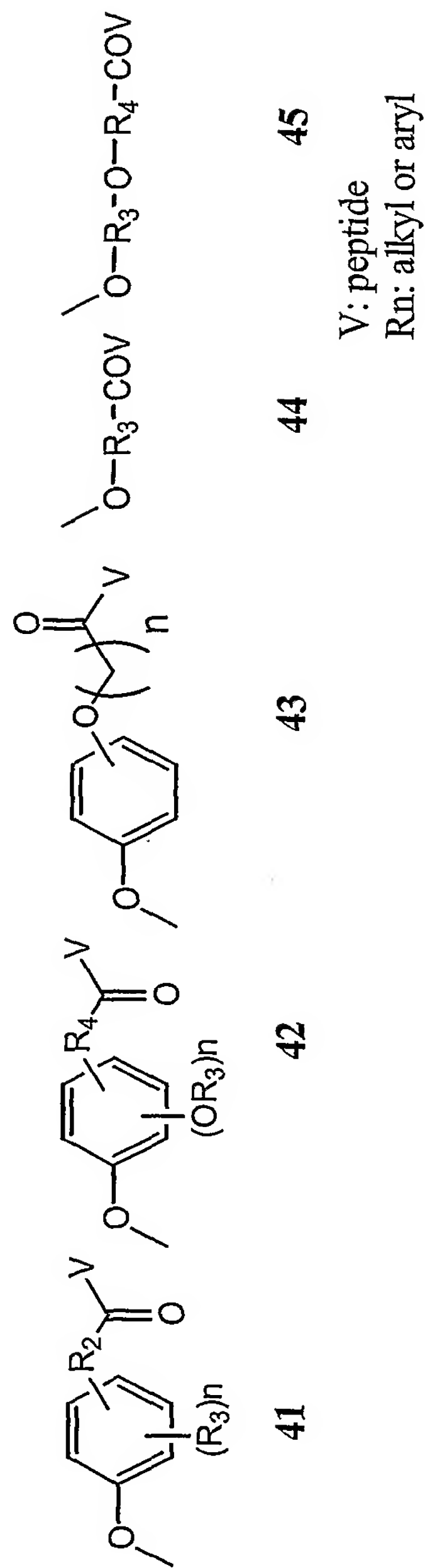
Fig 5D

A. Electron withdrawing substituents with peptide extension

36   37   38   39   40

W: halogen
V: peptide
R: alkyl or aryl

B. Electron donating substituents with peptide extension

41   42   43   44   45
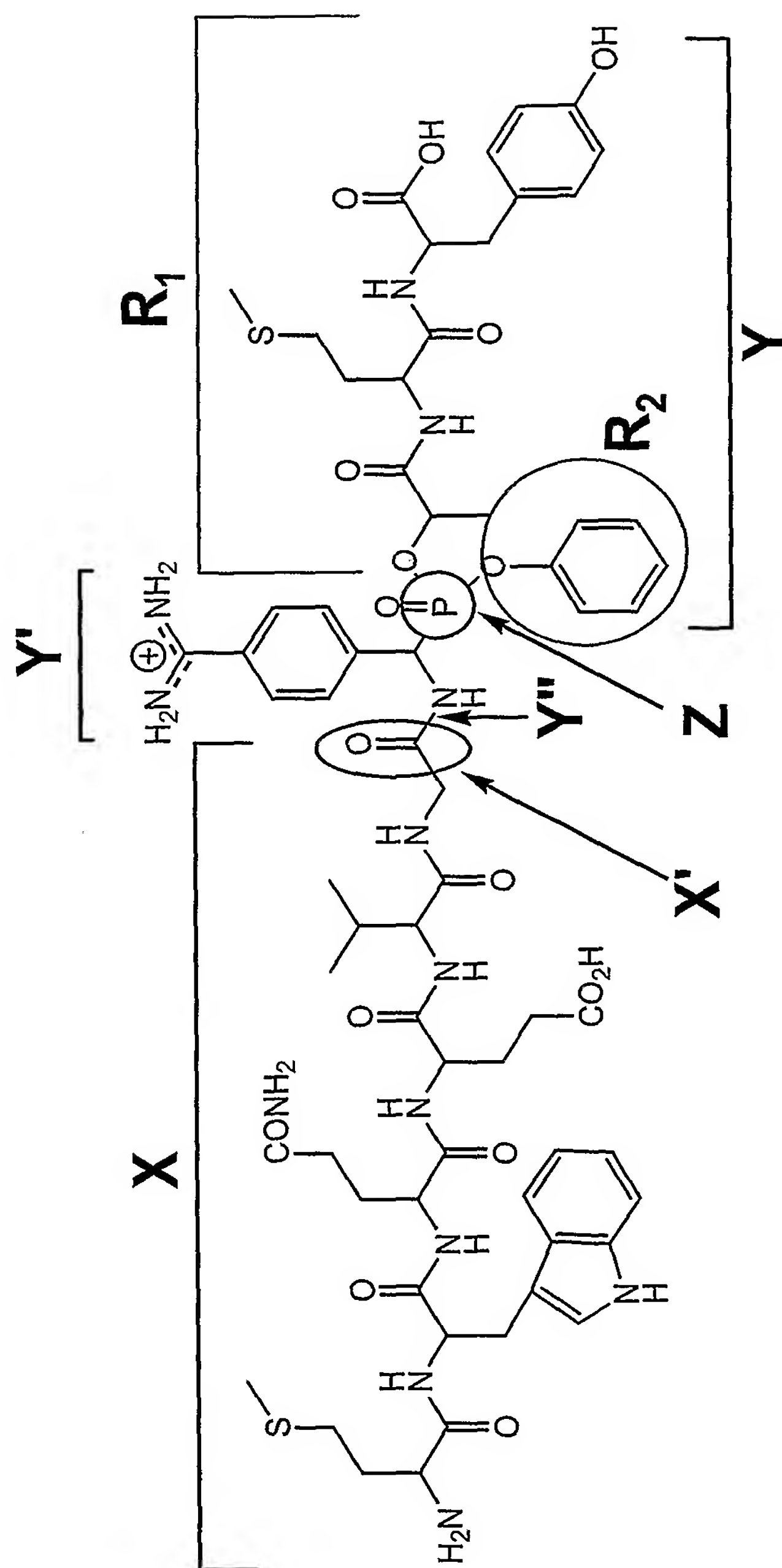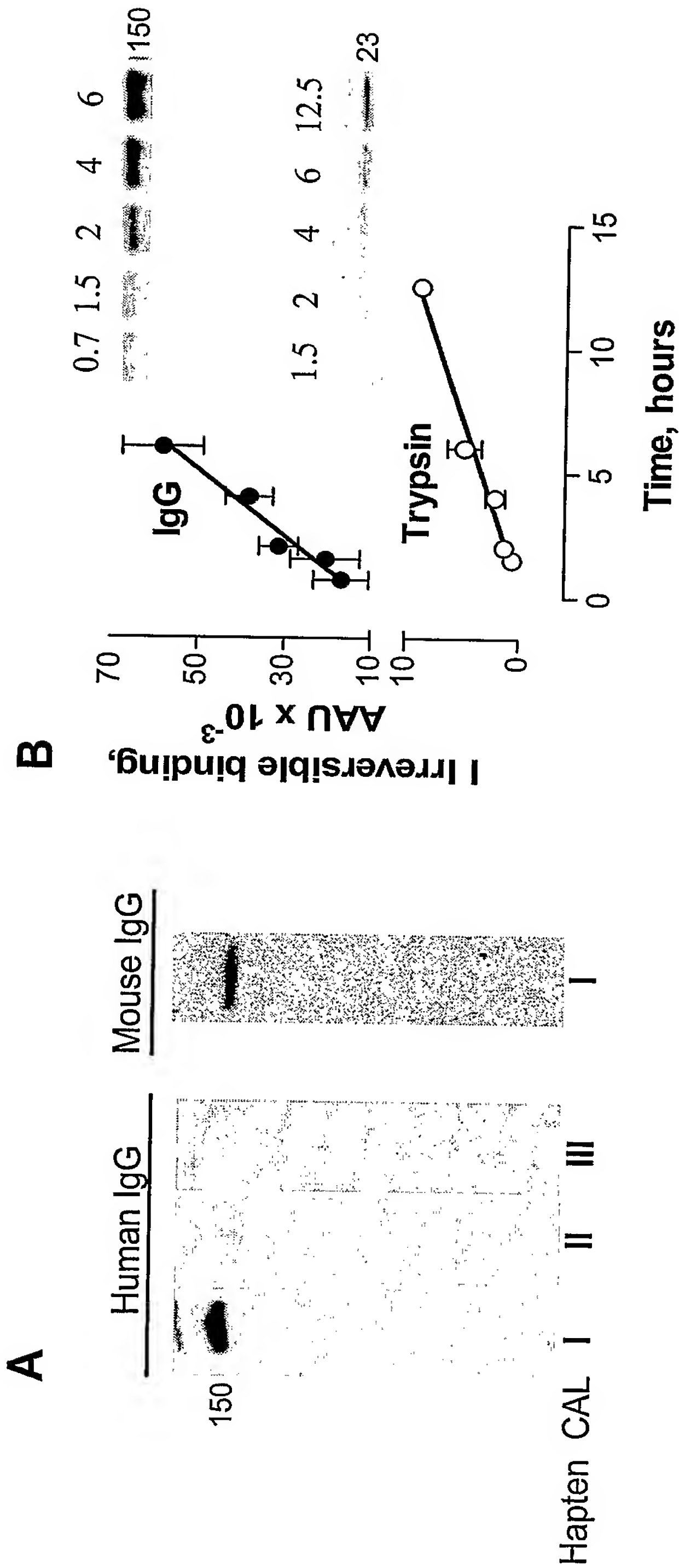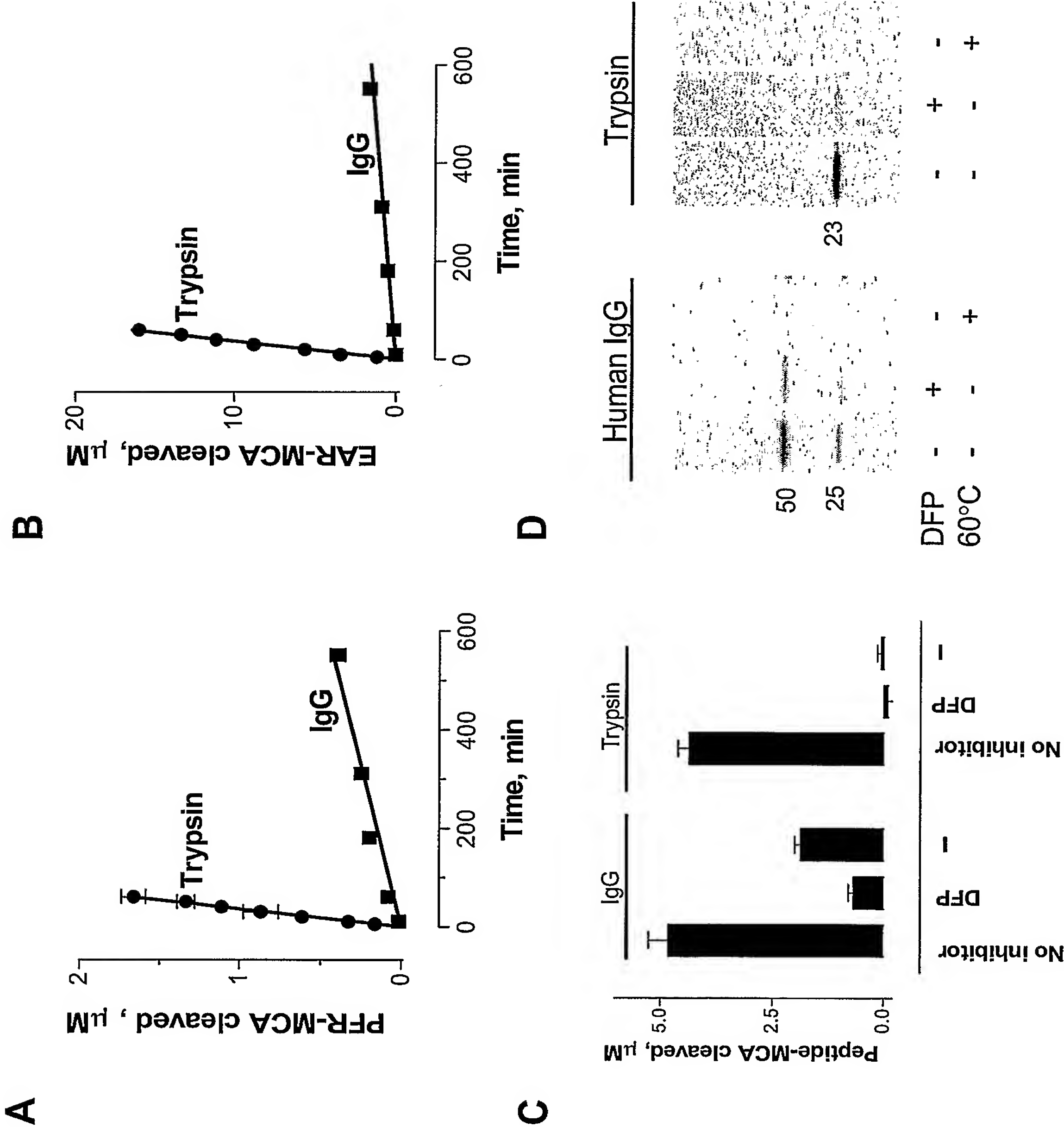
V: peptide
Rn: alkyl or aryl

Fig 6

Fig 7

Fig 8

Fig 9

Fig 10

Fig 11

Fig 12

Fig 13

A

1: R = 6-(D-biotinamido)hexanoyl
2: R = O-succinimidylsuberyl

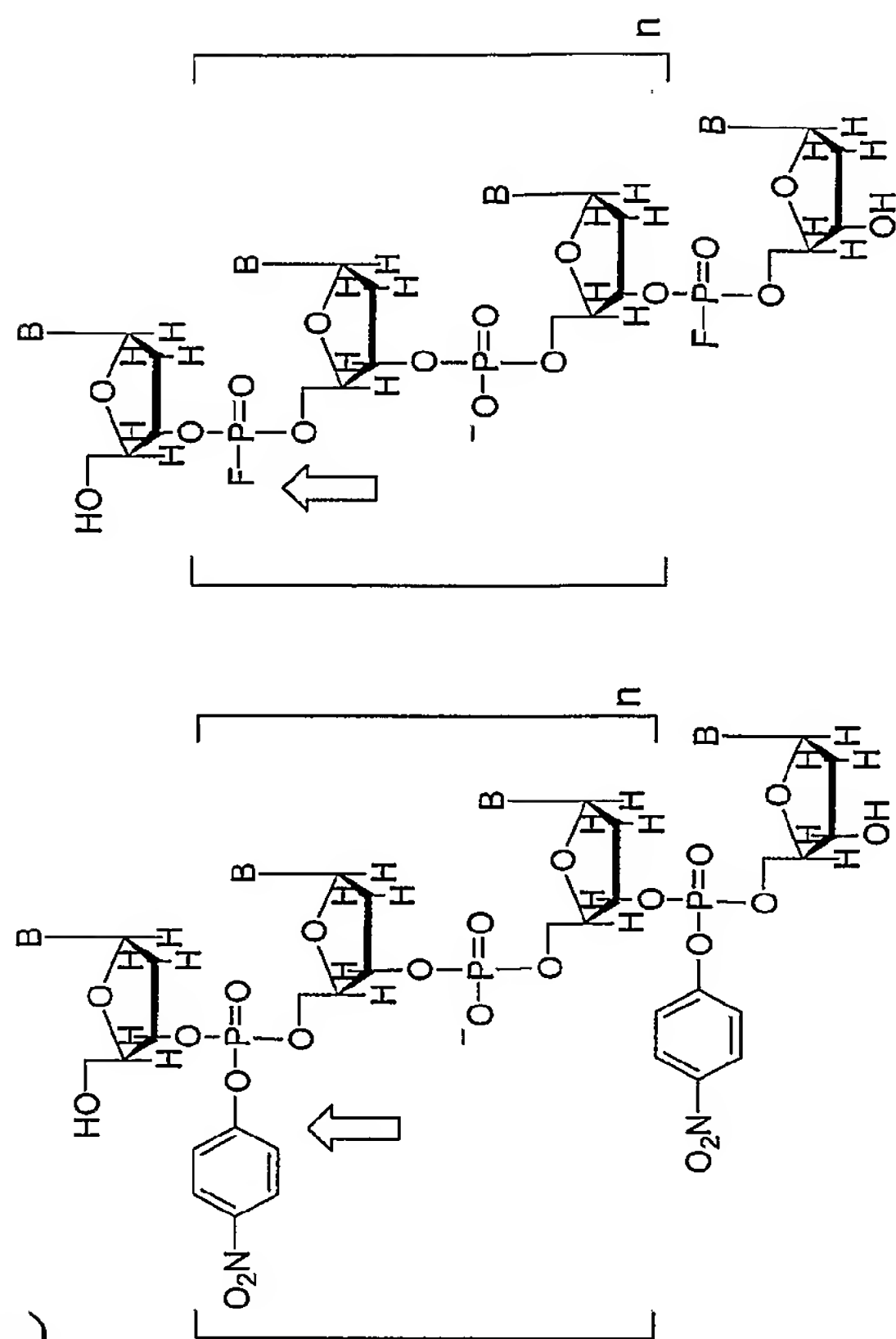R-His-Ser-Asp-Ala-Val-Phe-Thr-Asp-Asn-Tyr-Thr-Arg-Leu-Arg-Lys-Gln-Met-Ala-Val-NH₂
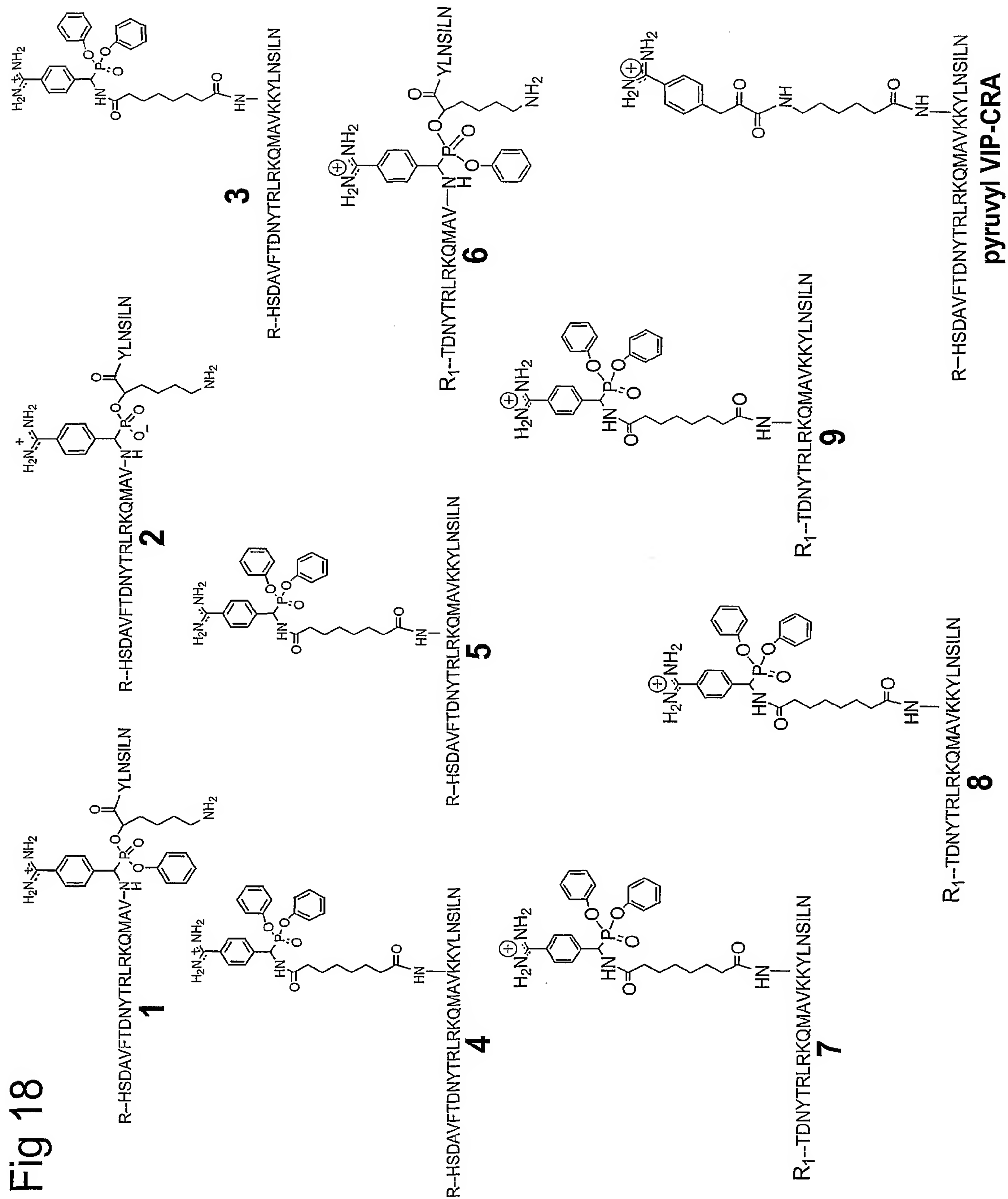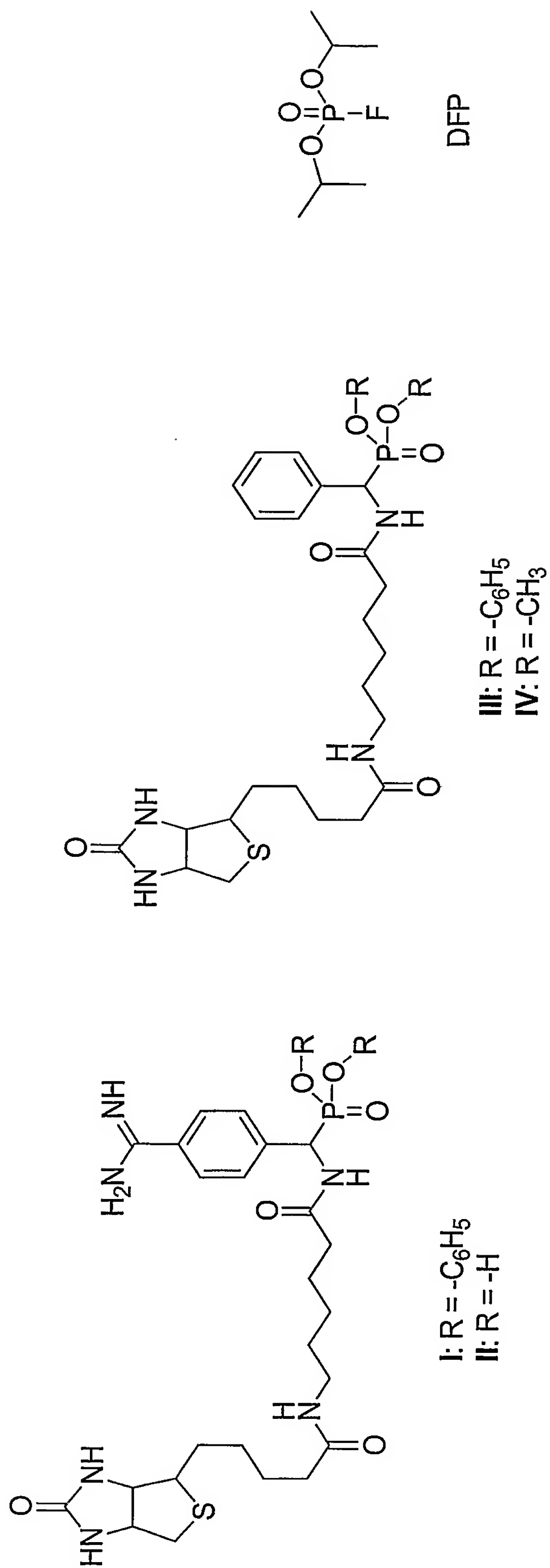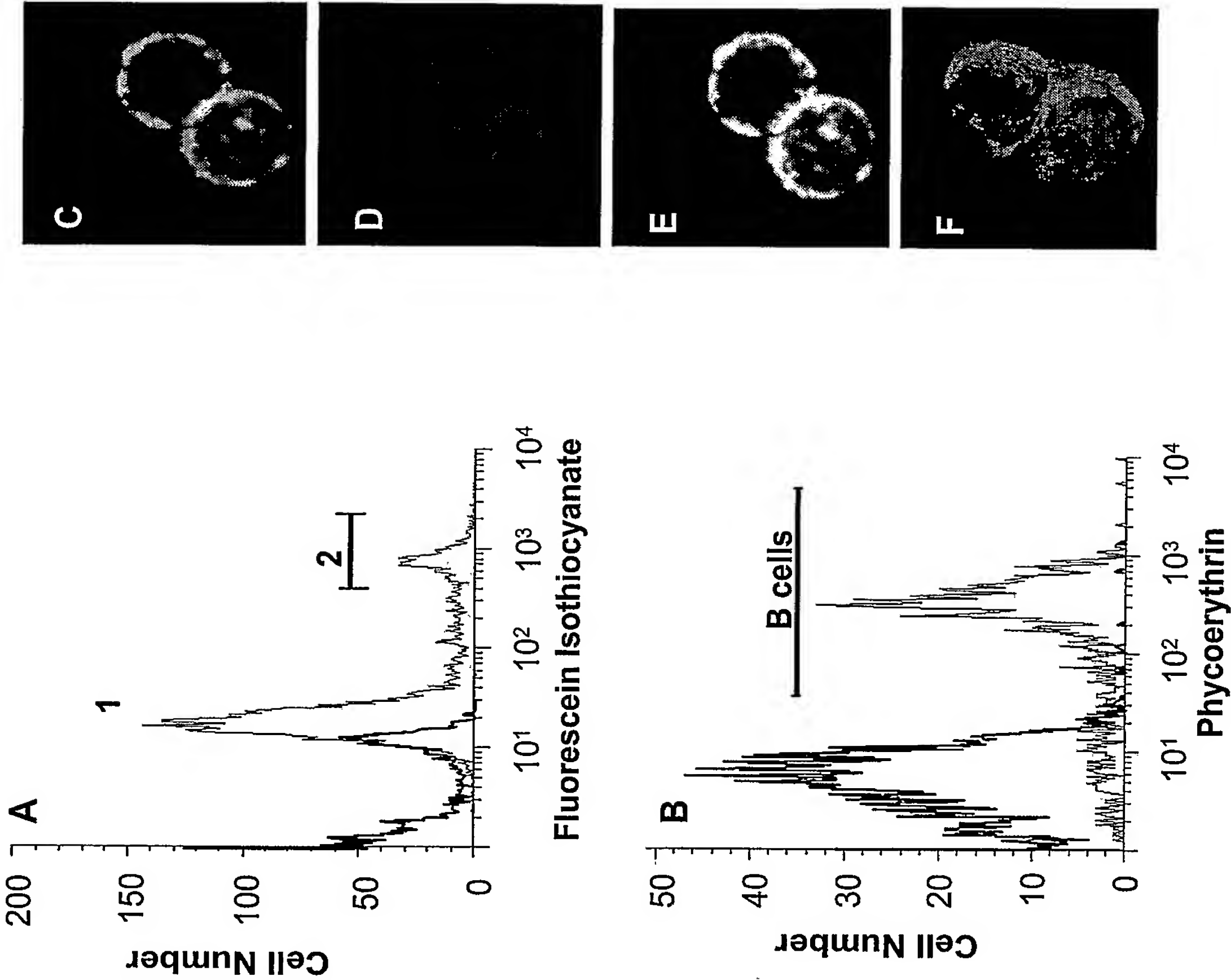
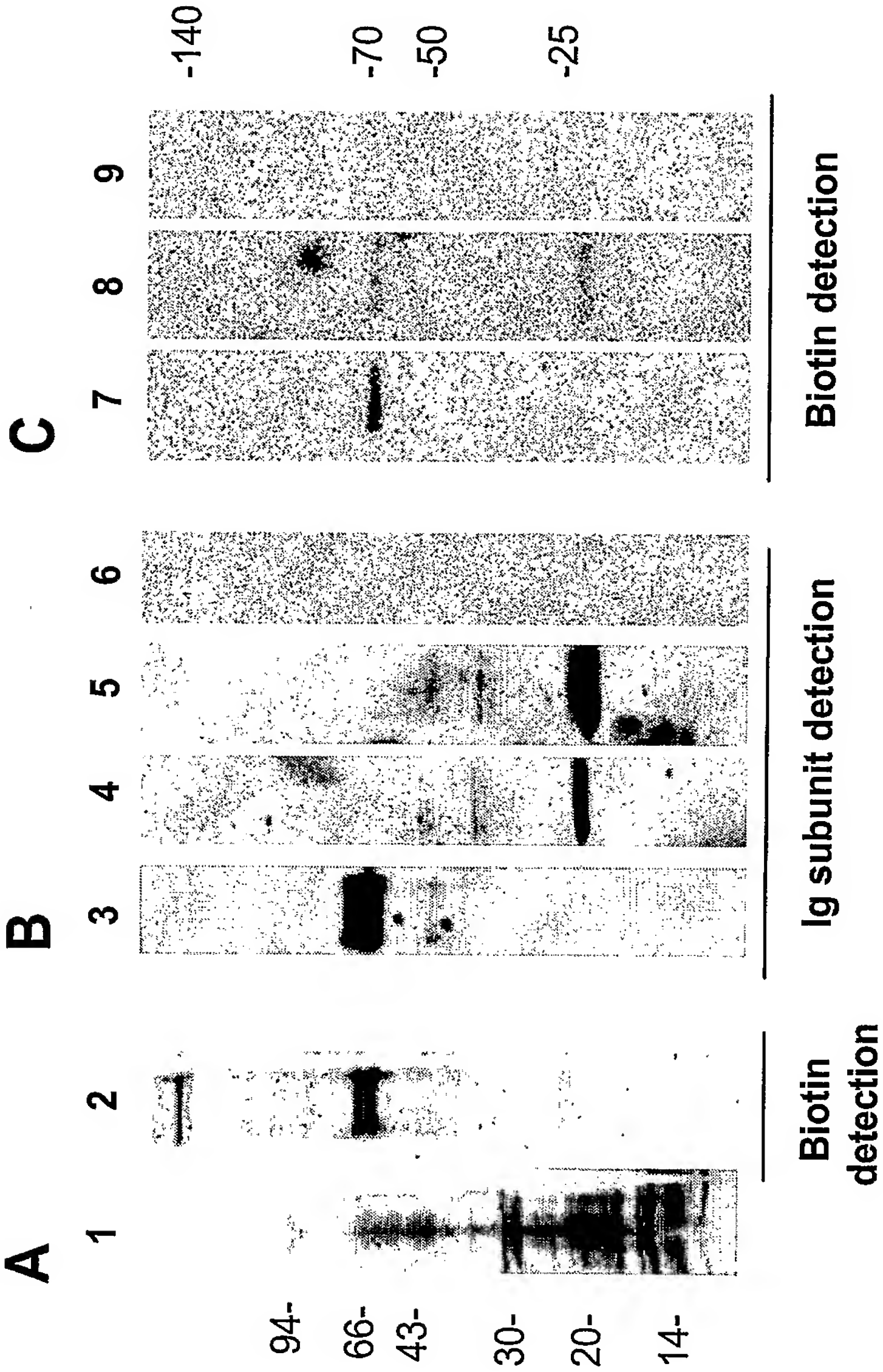3: R = D-biotinyl

B

Fig 14

Fig 15

Fig 16

Fig 17

Fig 18
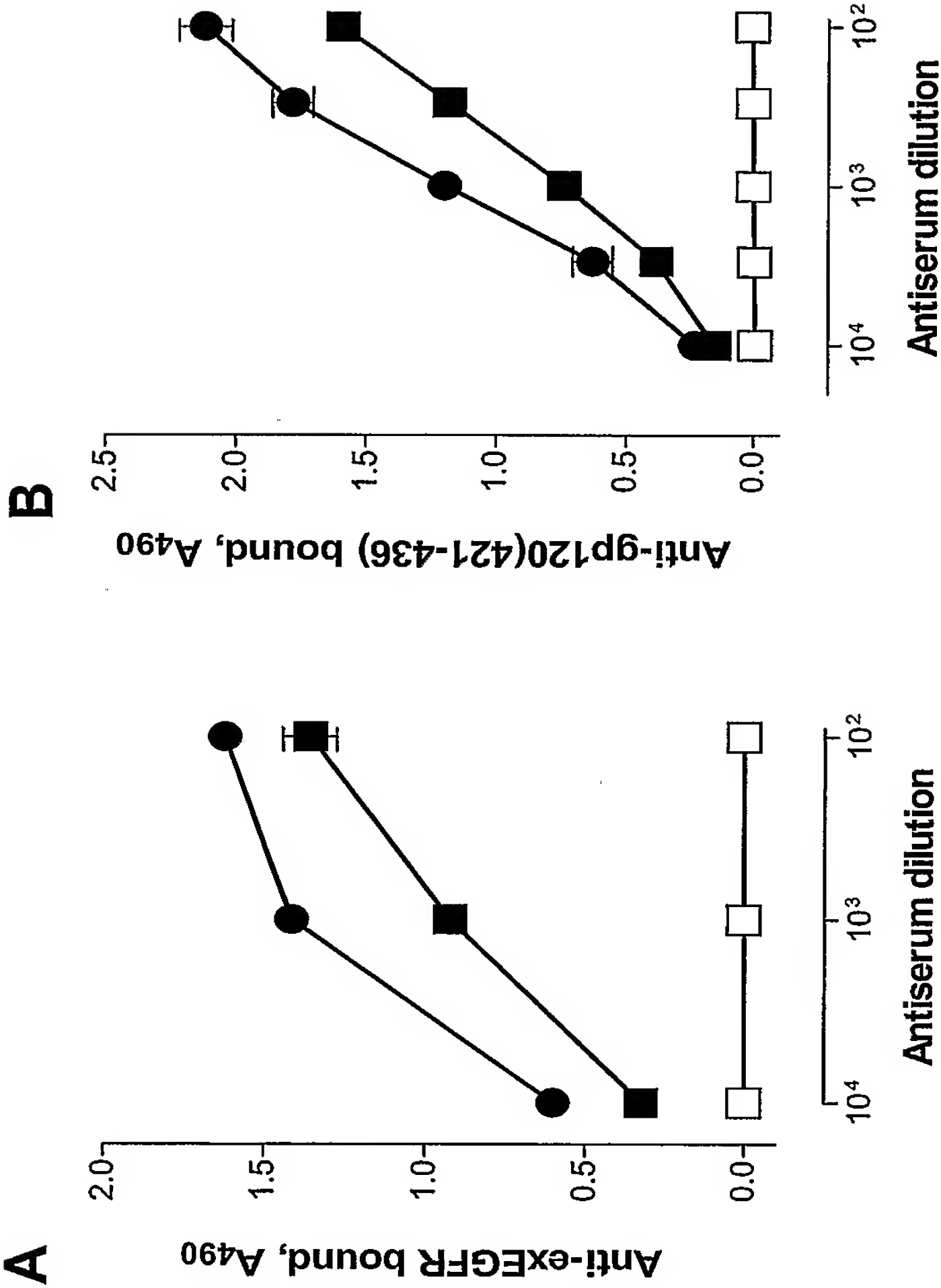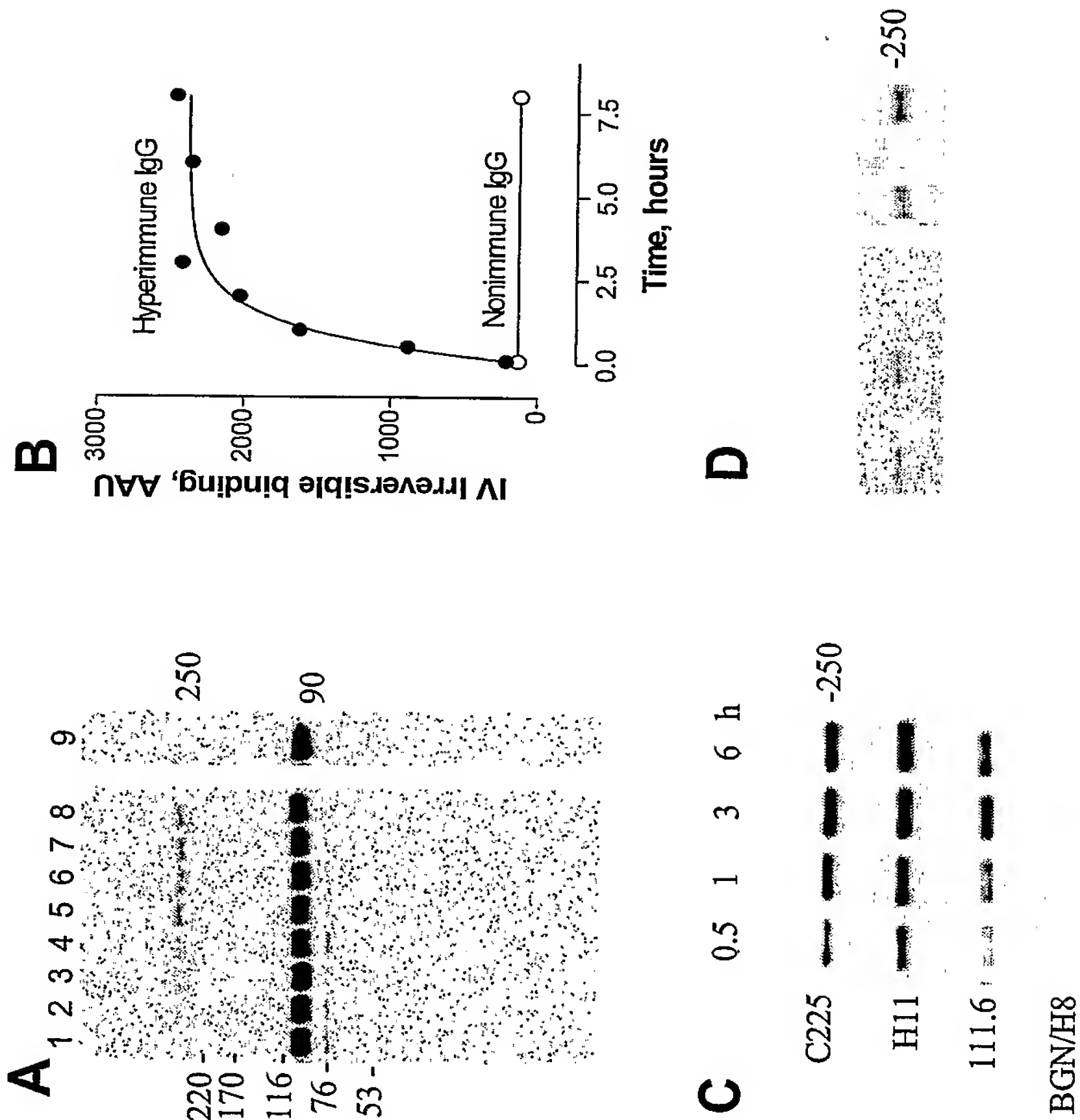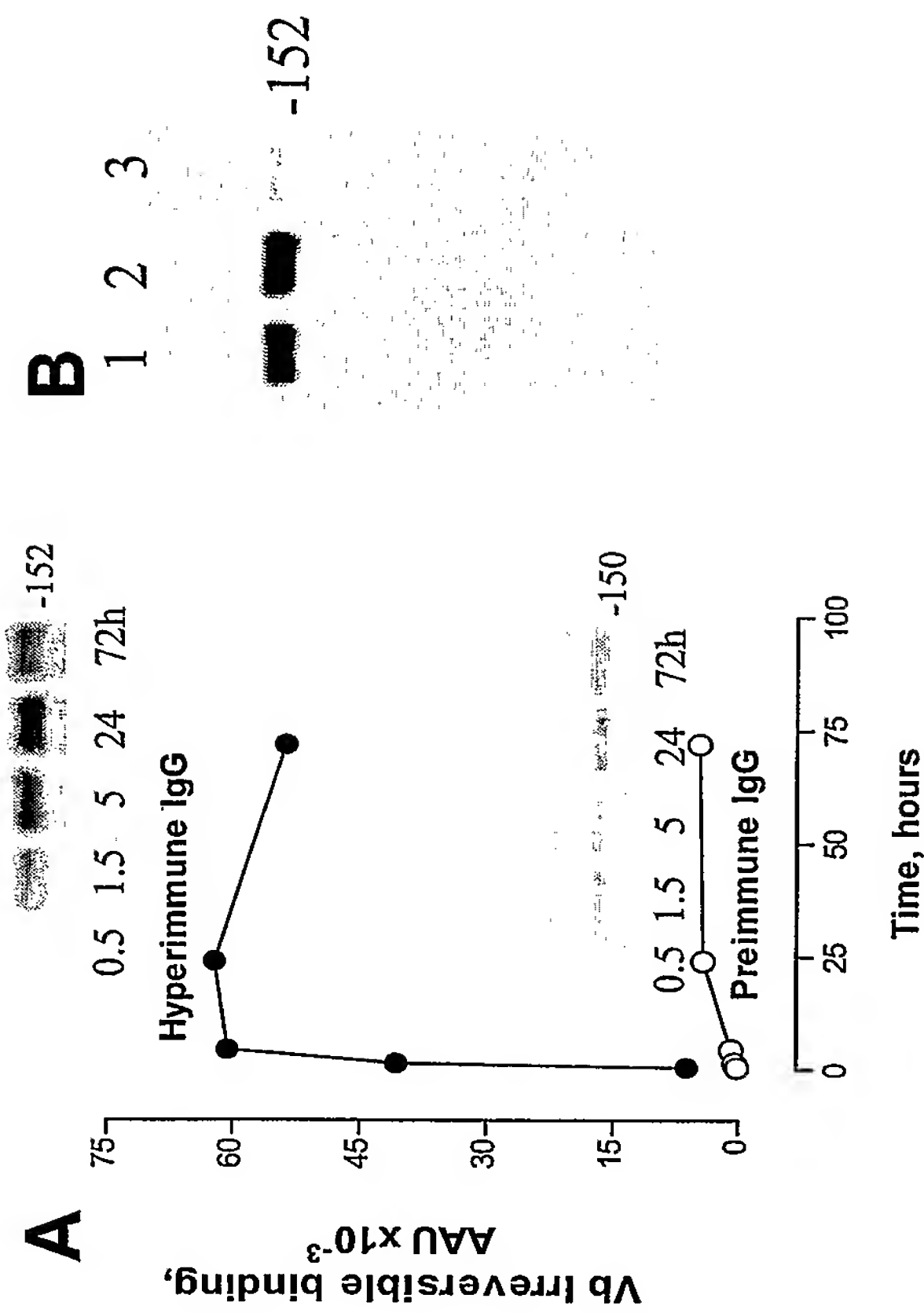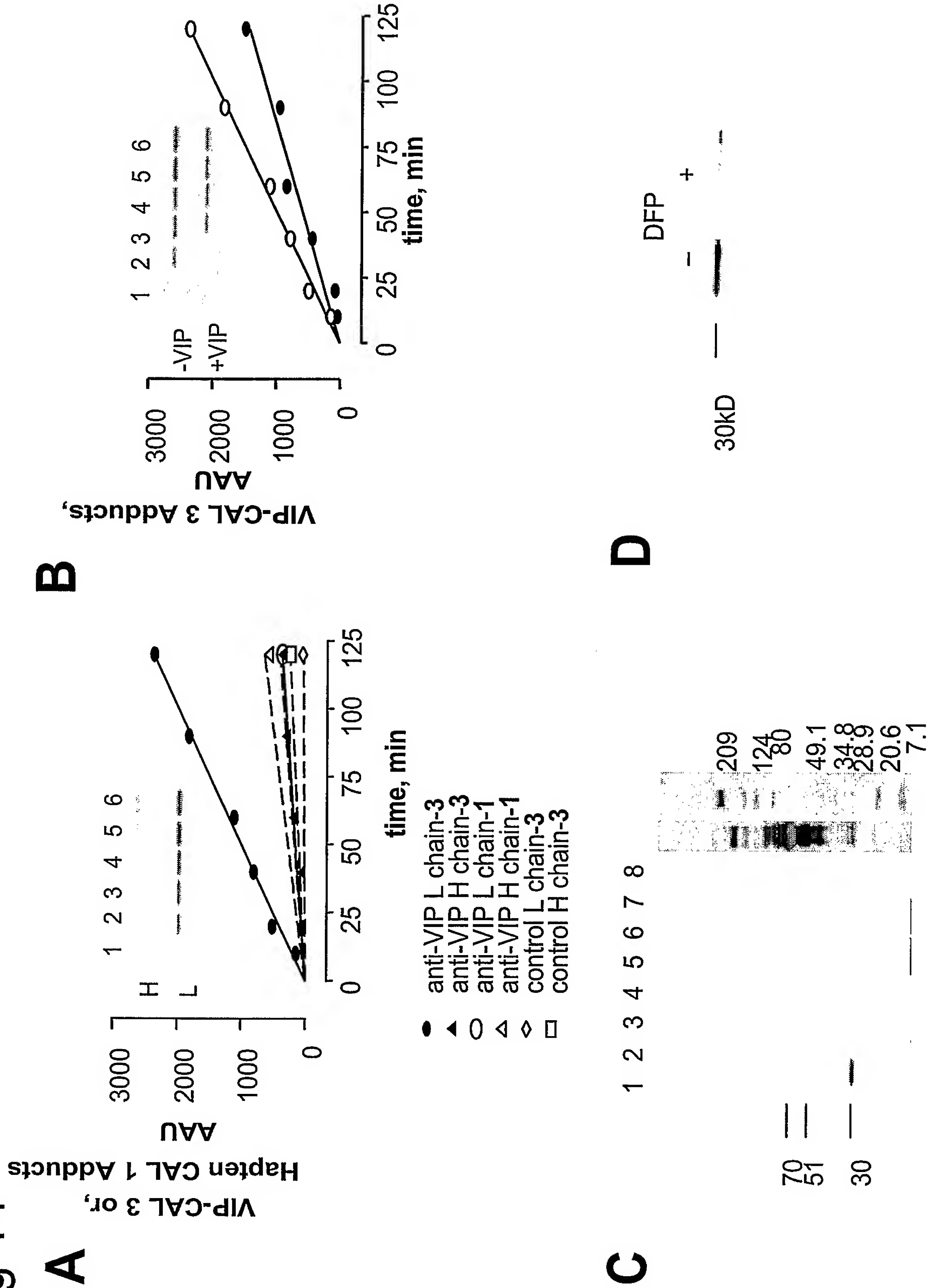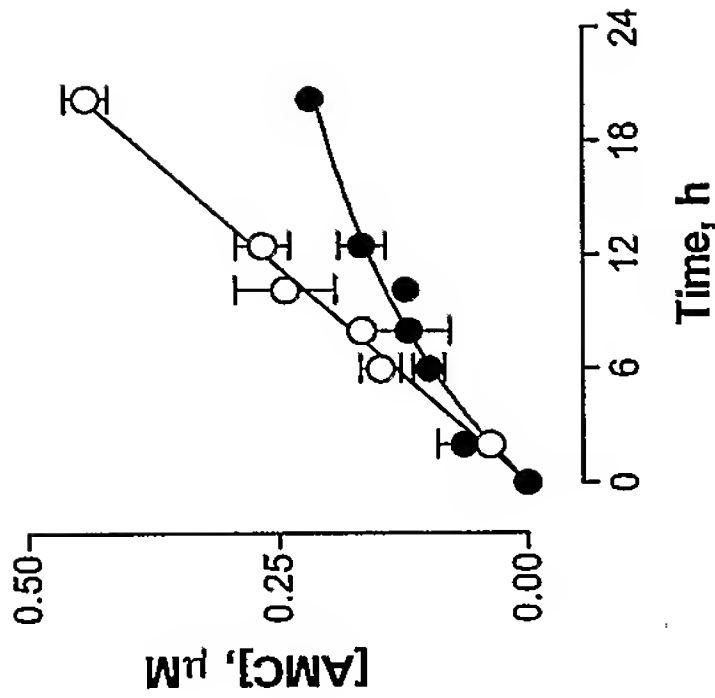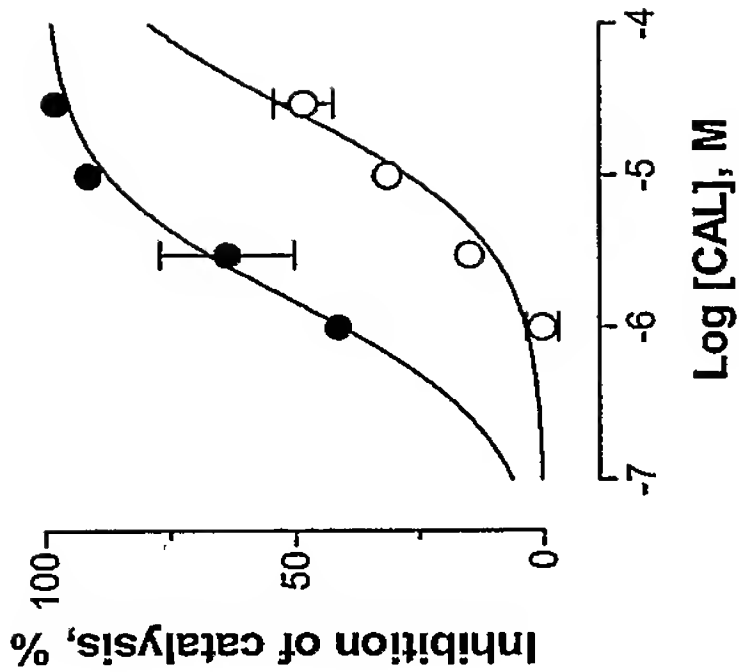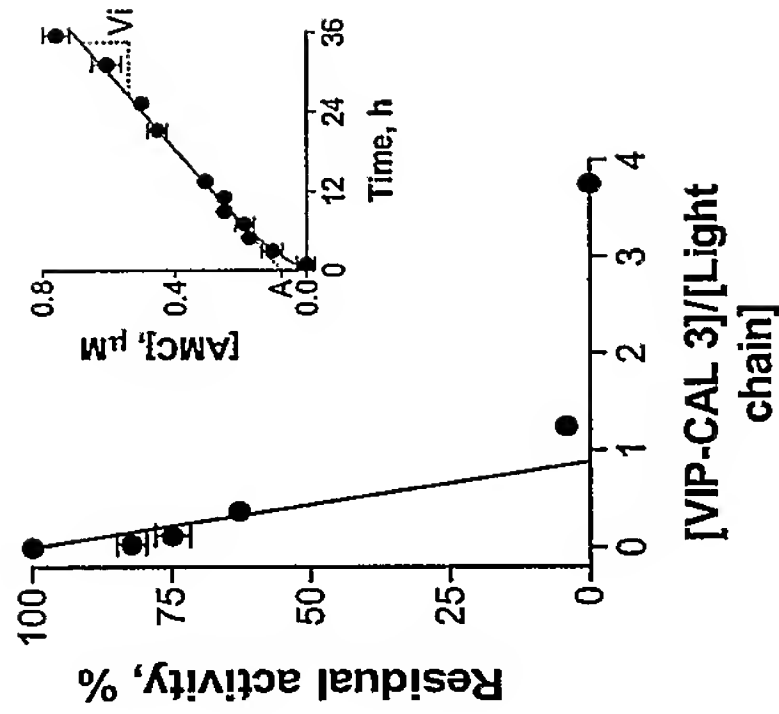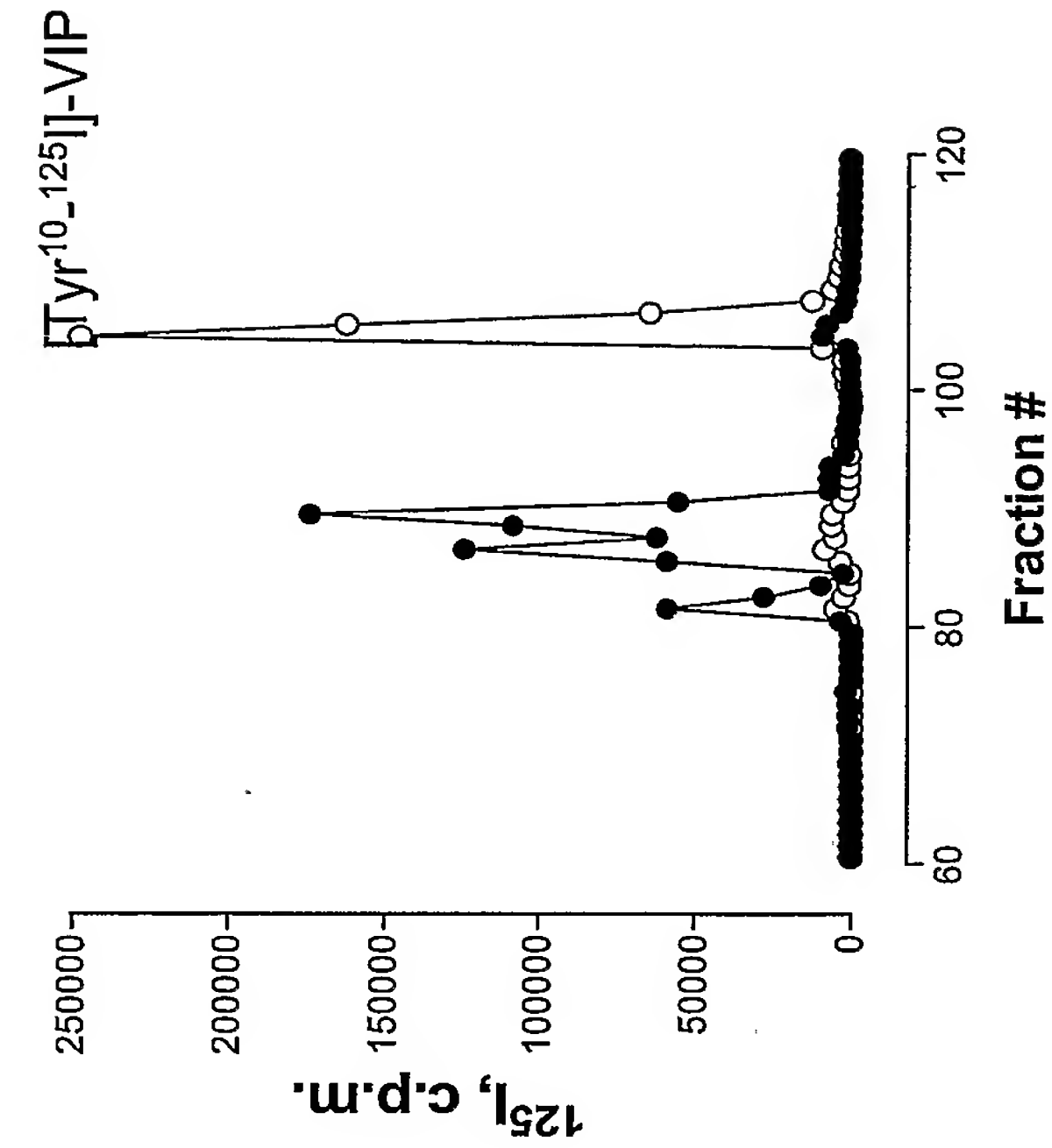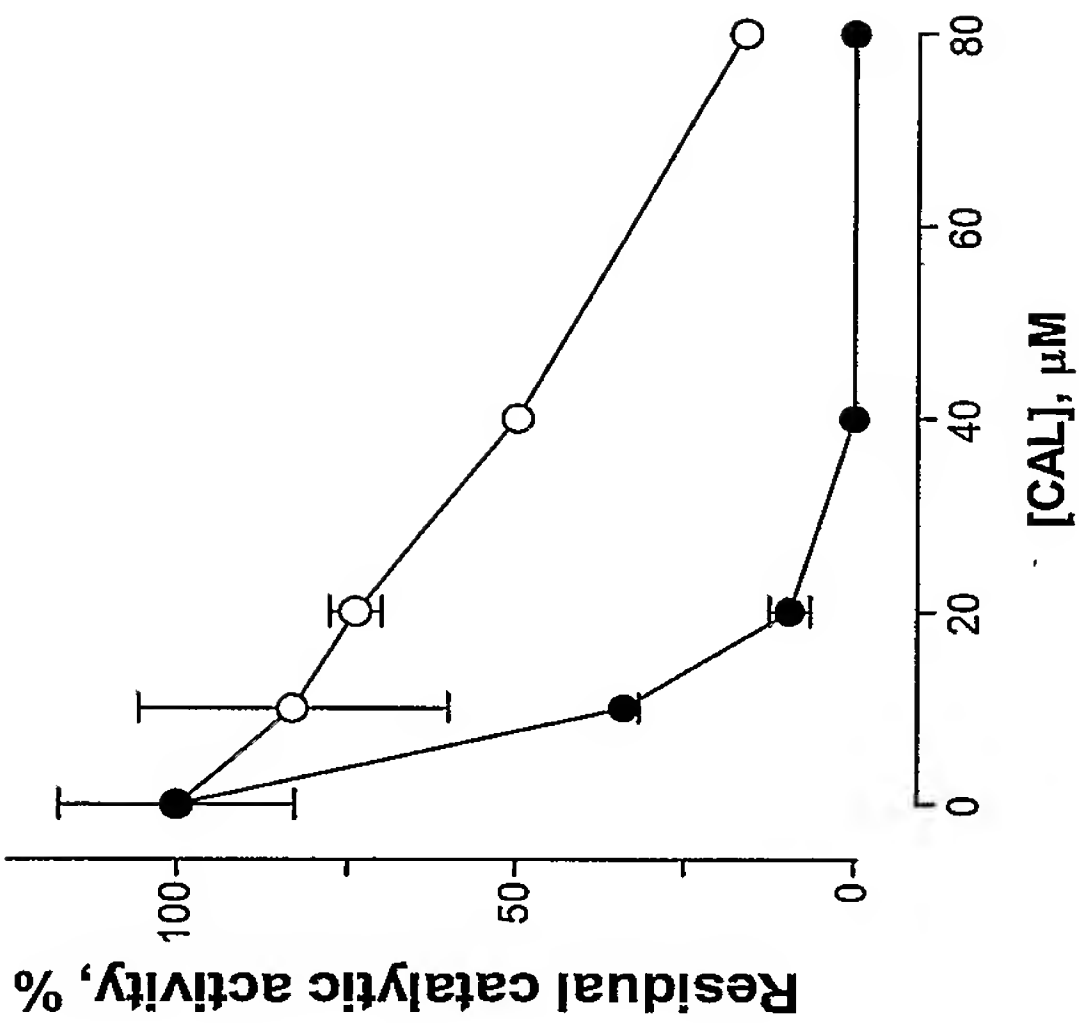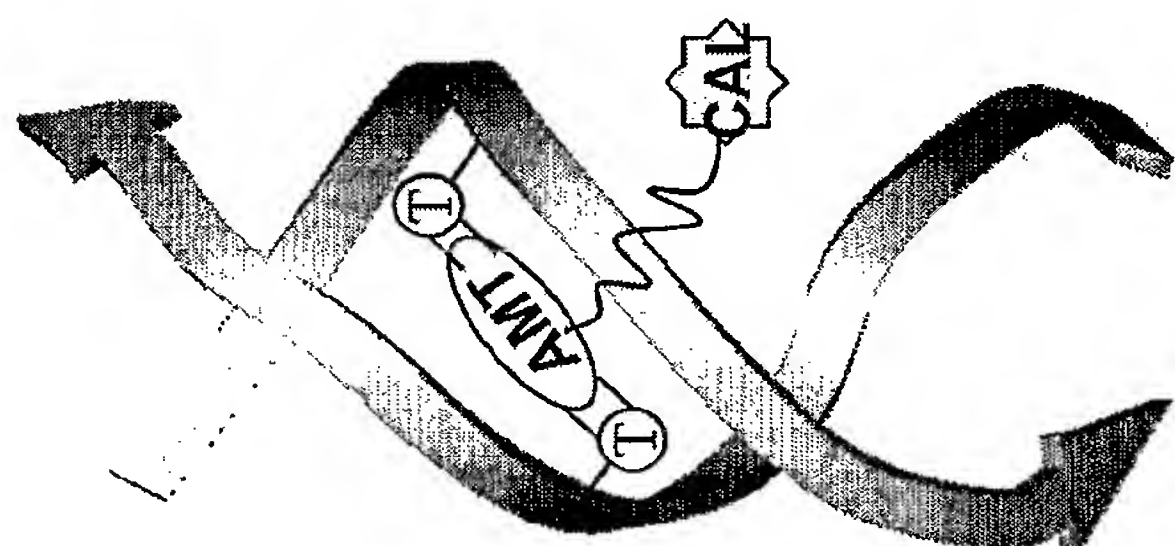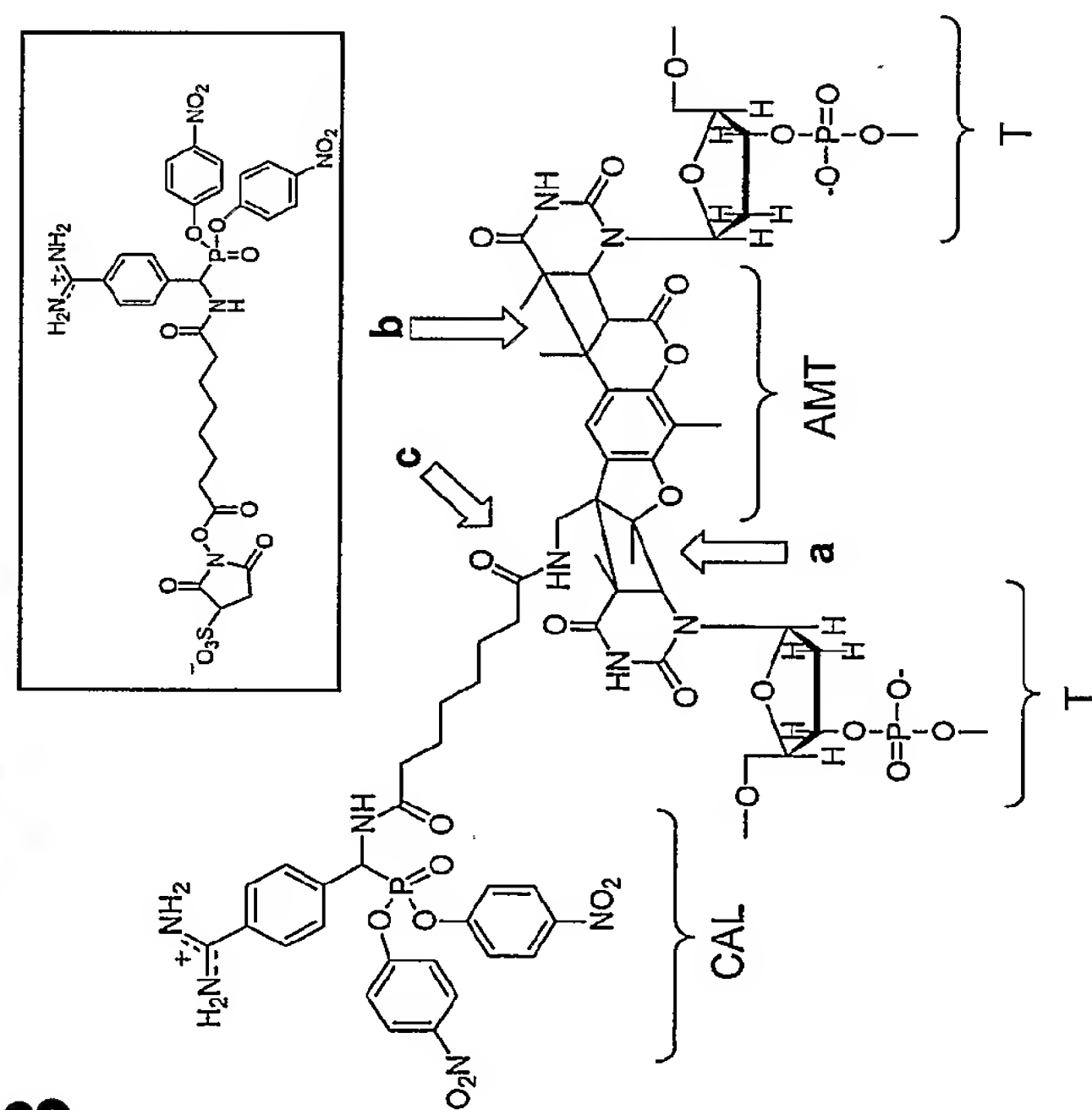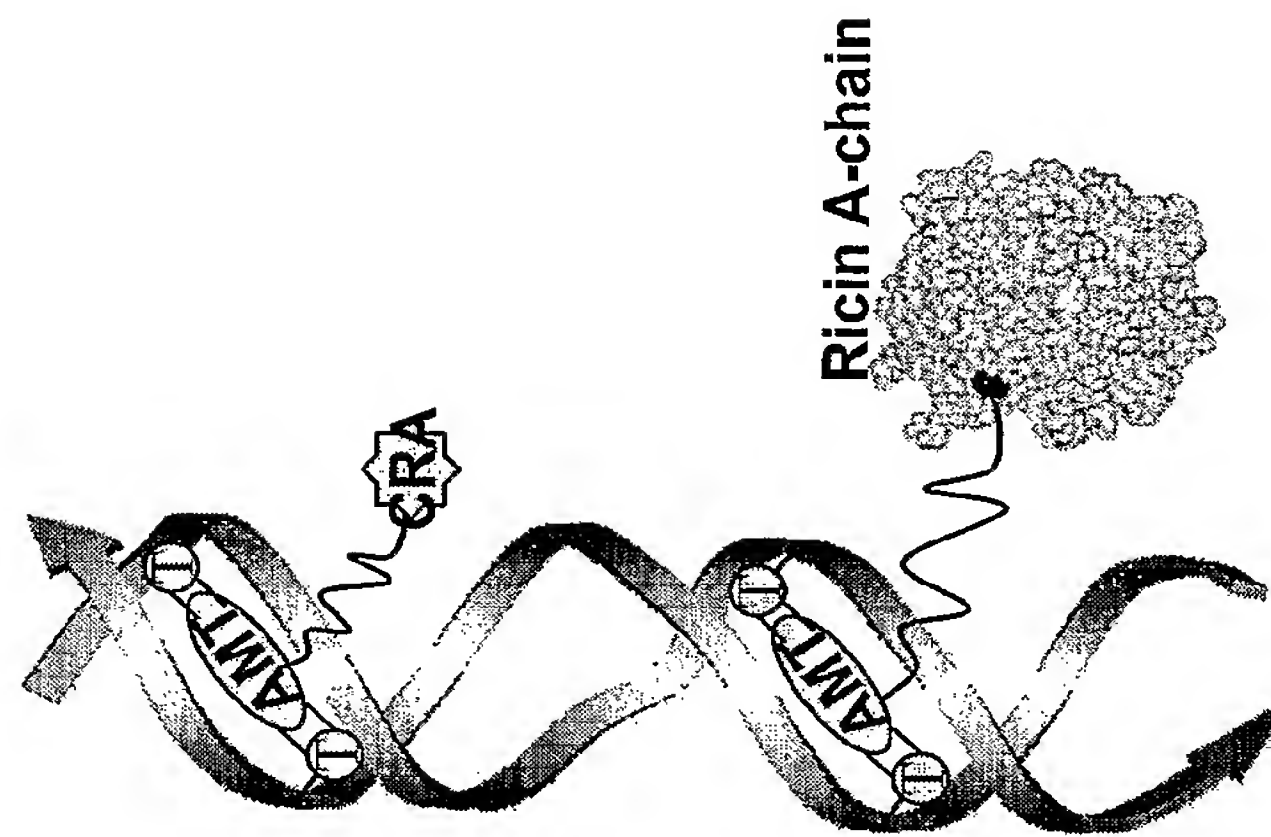
Fig 19

Fig 20

Fig 21

Fig 22
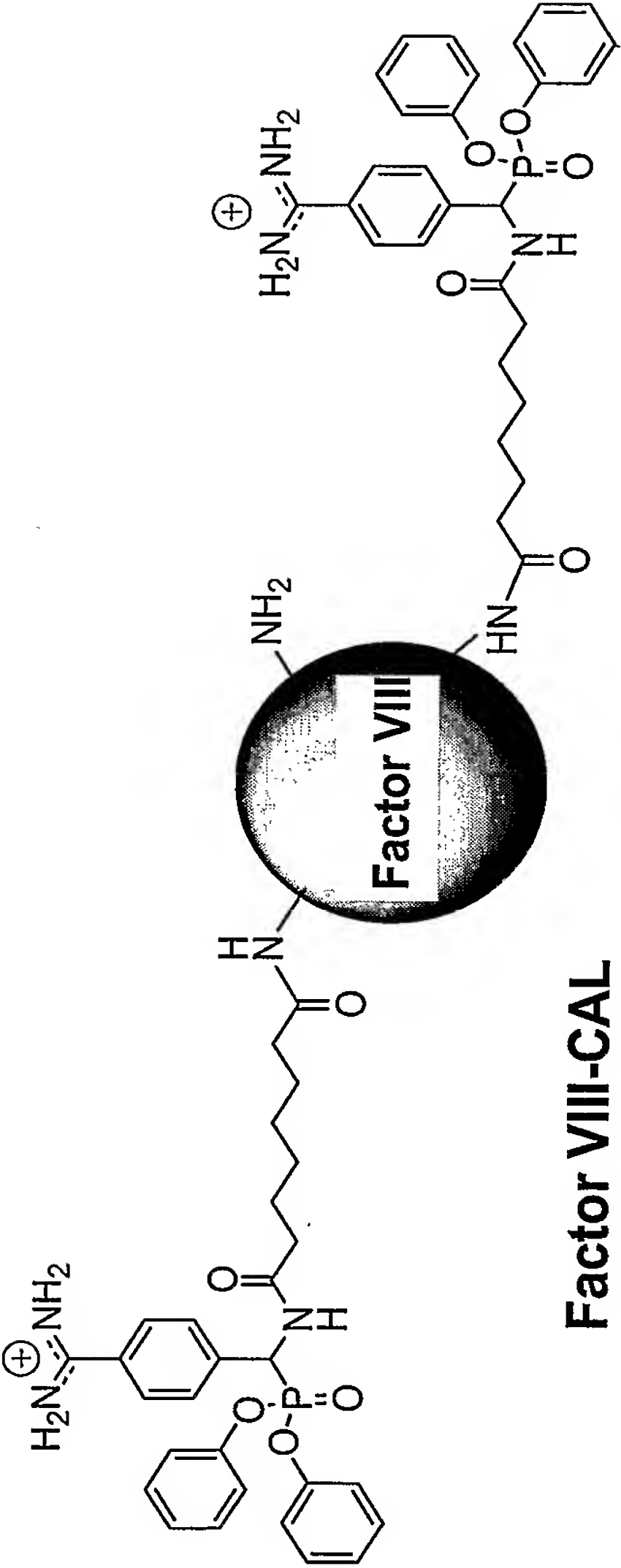
Fig 23

Fig 24

Fig 25

Fig 26

A

3: R = D-biotinyl

R-His-Ser-Asp-Ala-Val-Phe-Thr-Asp-Asn-Tyr-Thr-Arg-Leu-Arg-Lys-Gln-Met-Ala-Val-
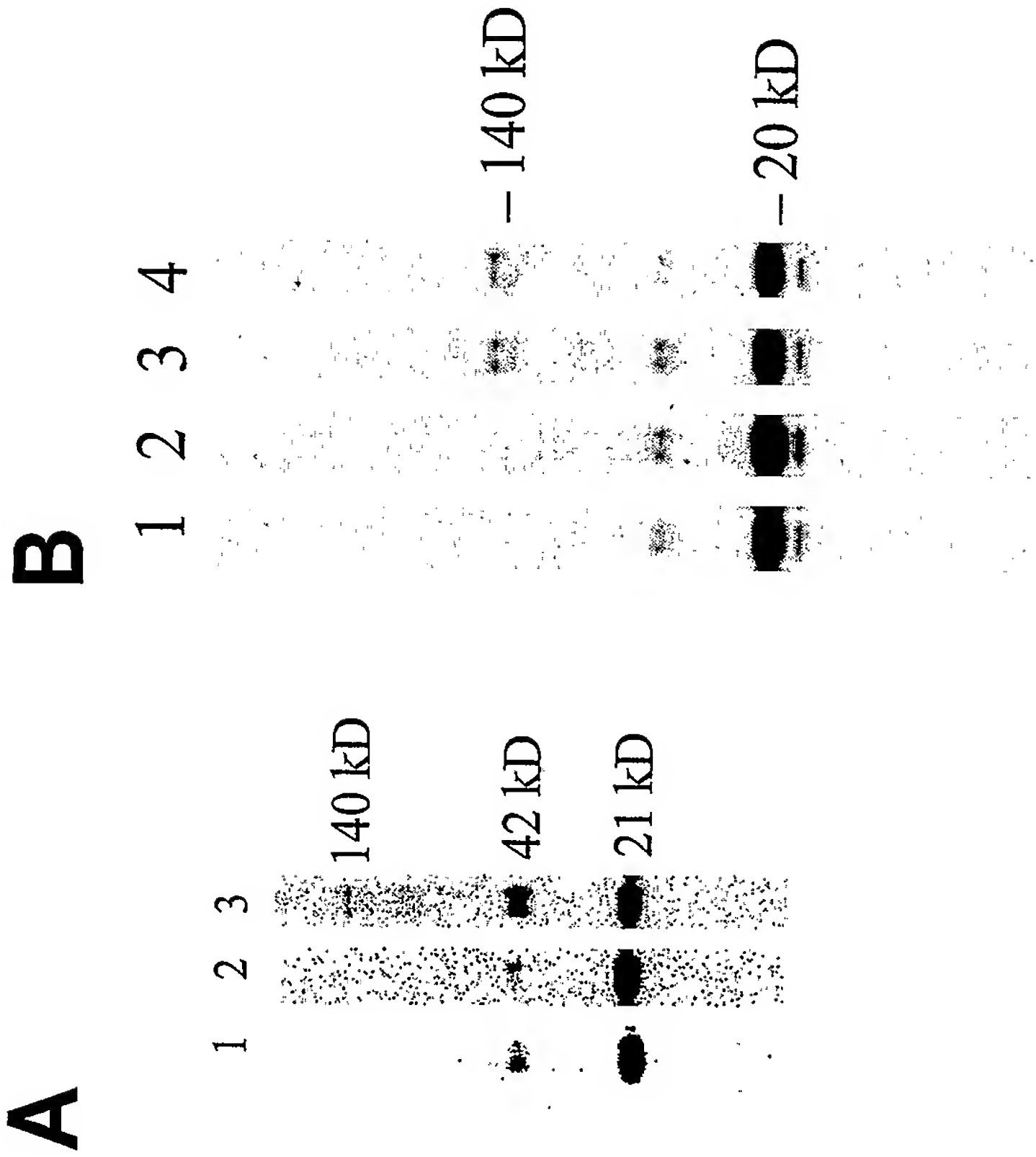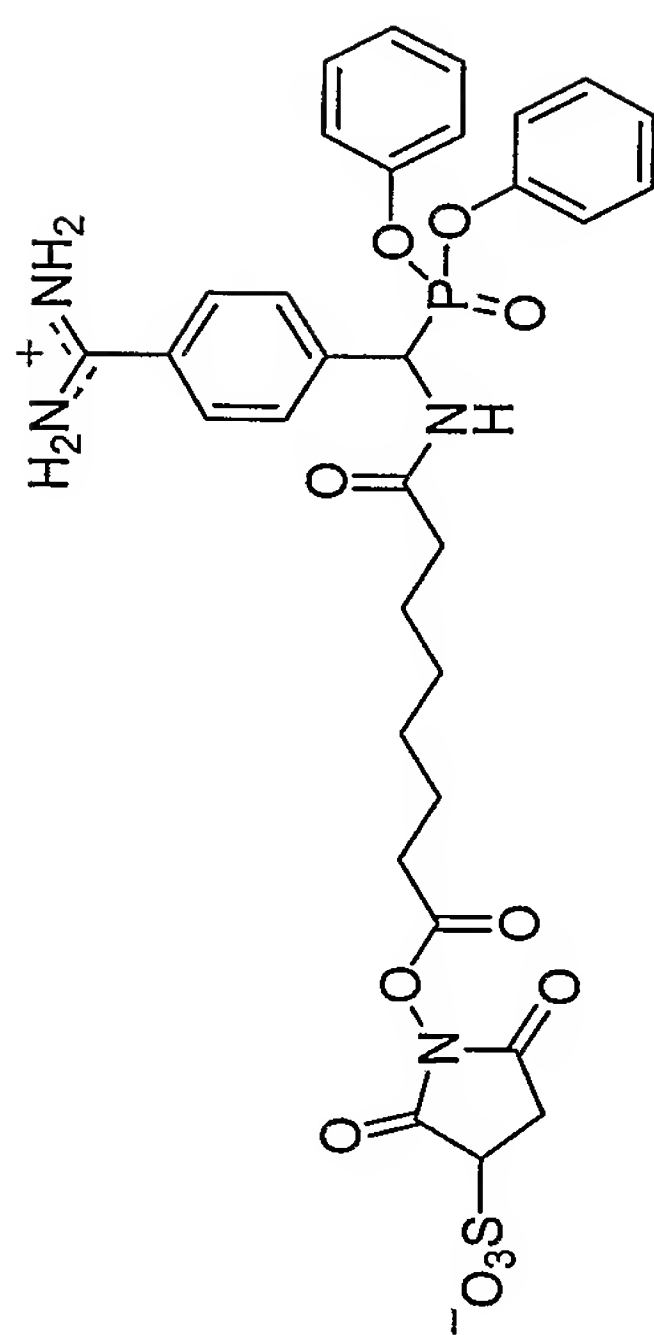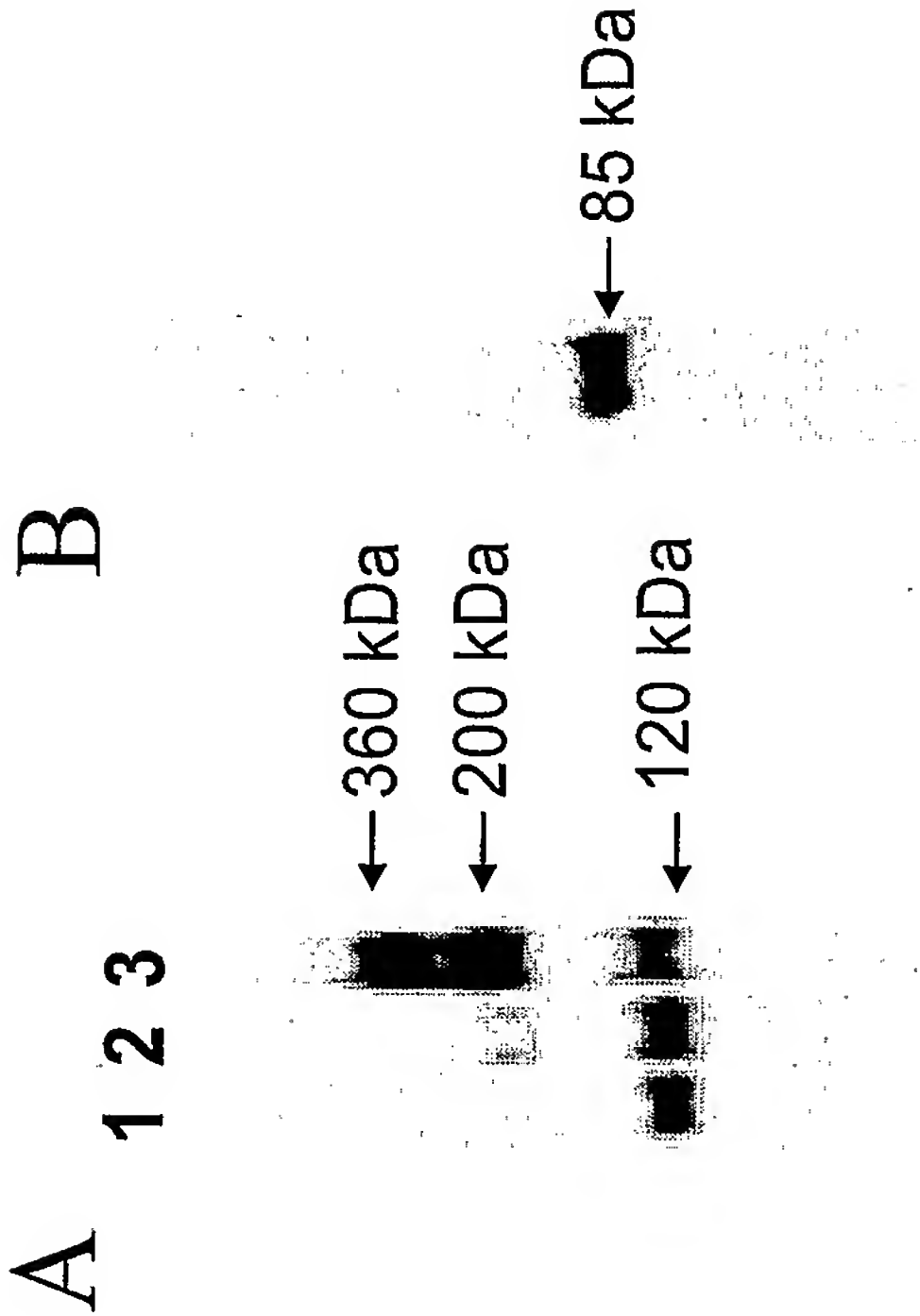
Lys-Tyr-Leu-Asn-Ser-Ile-Leu-Asn-NH$_2$
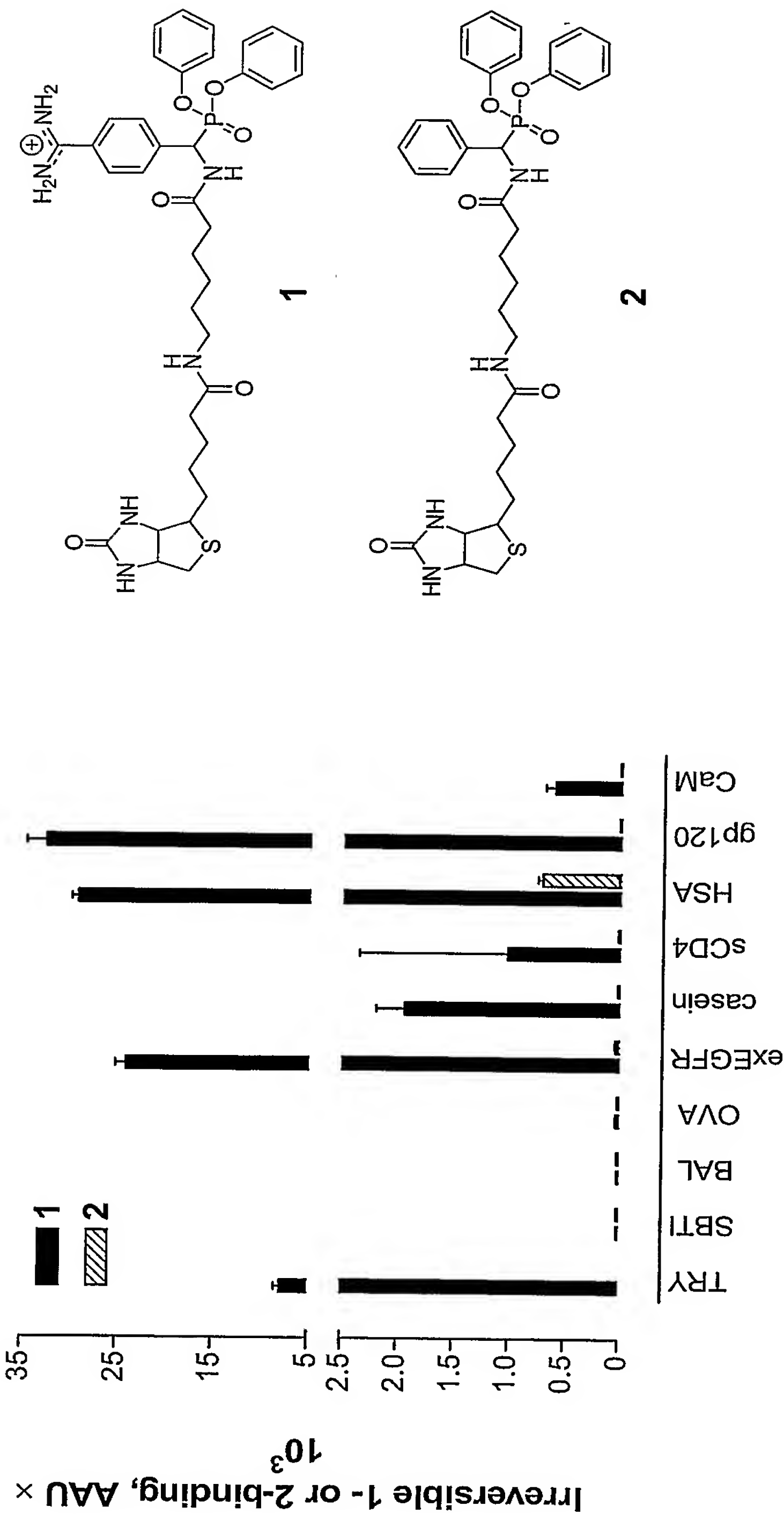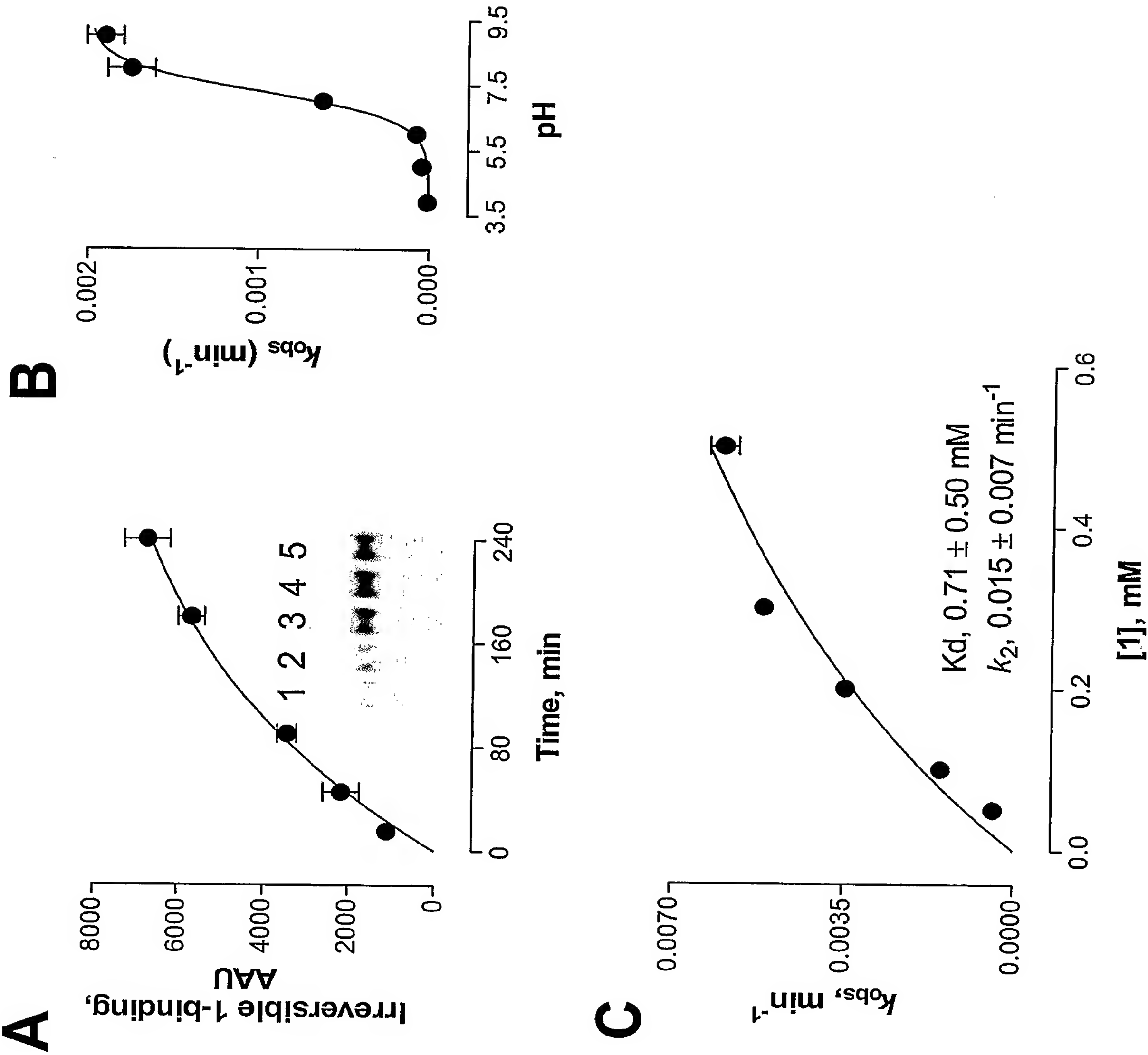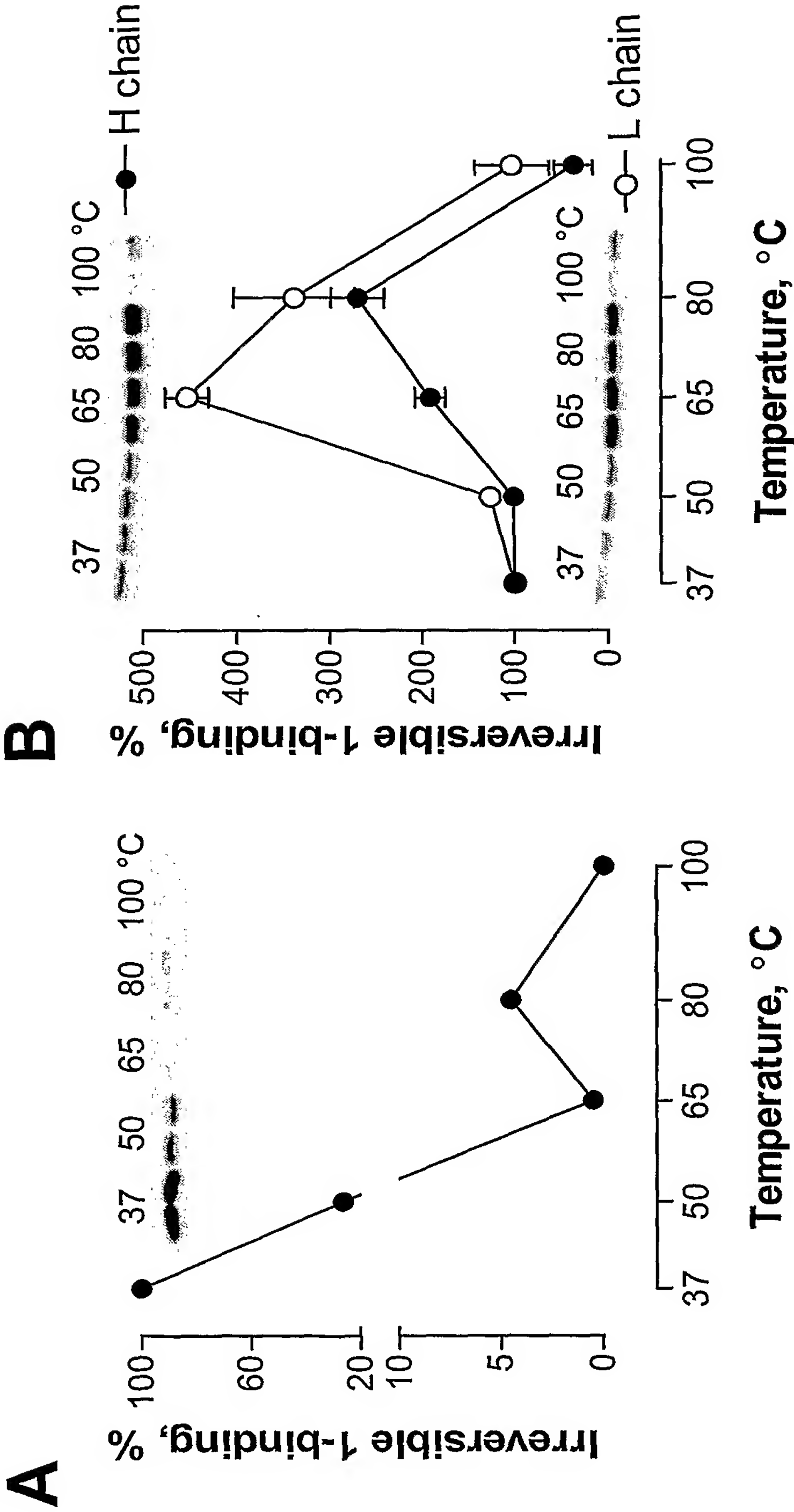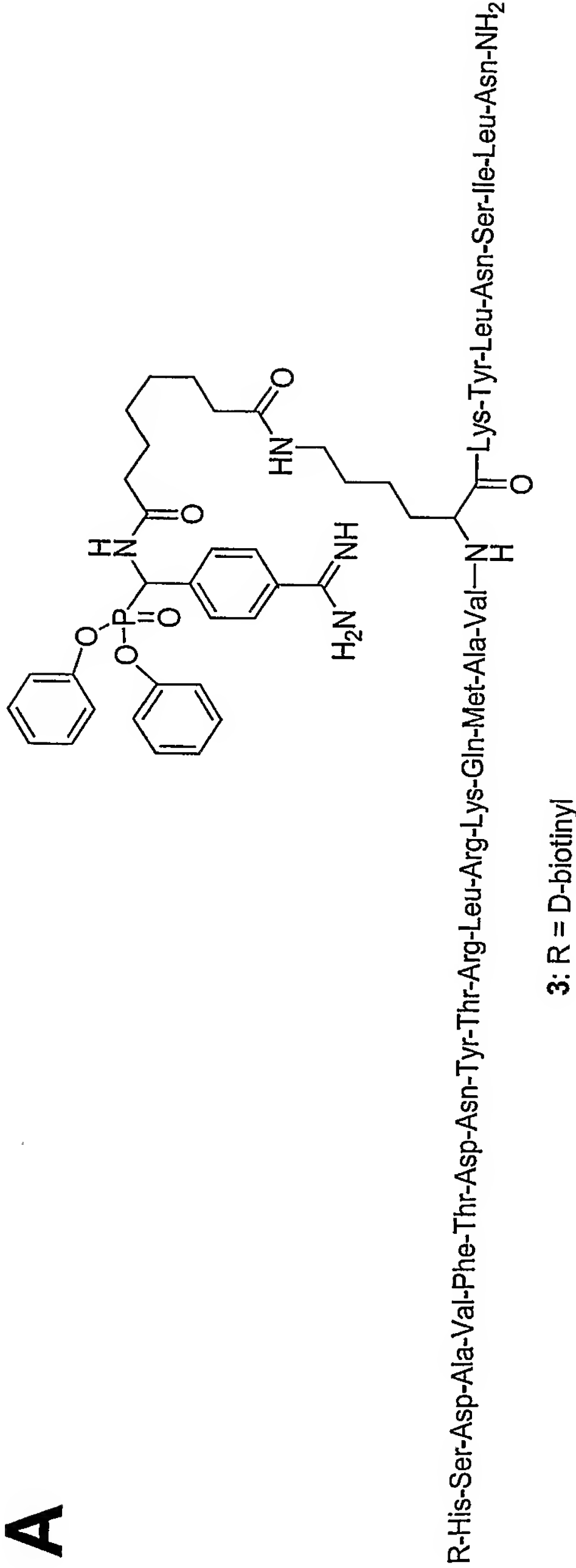
B
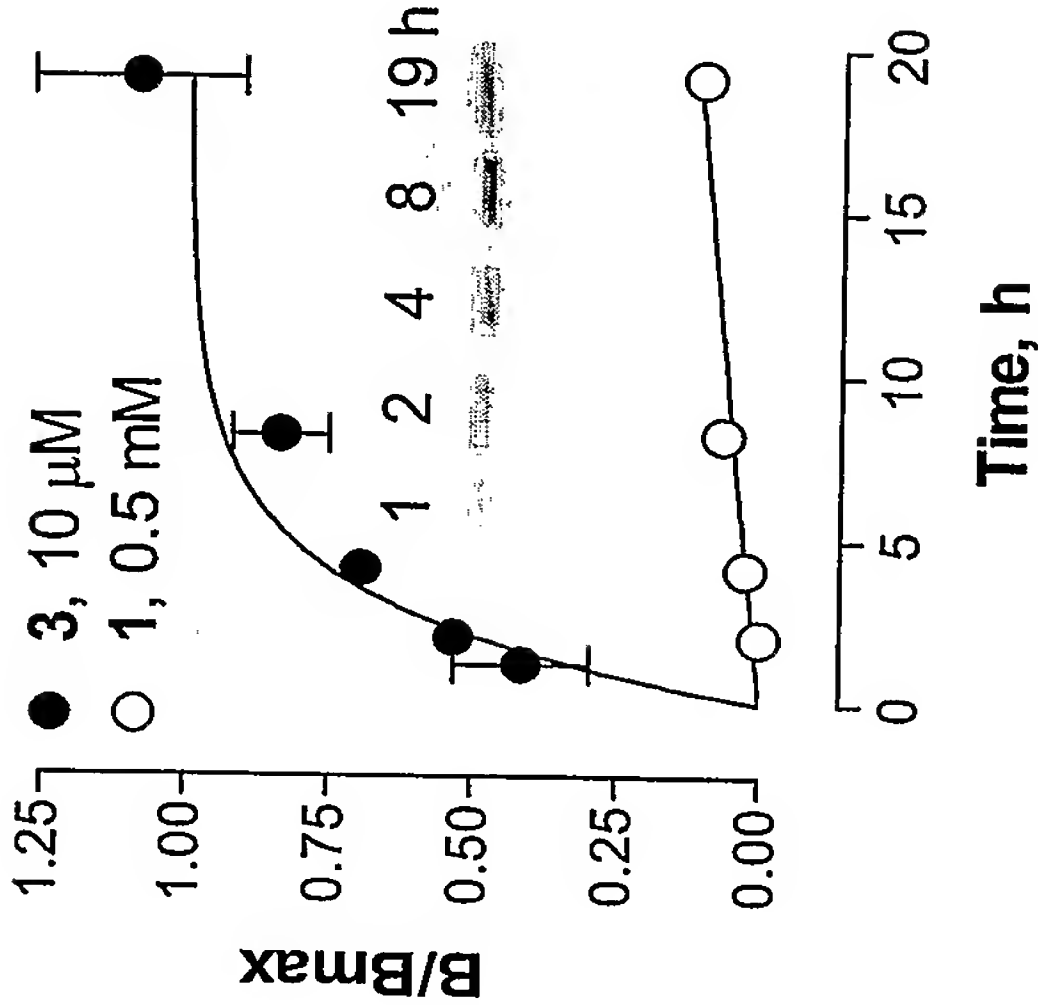
C
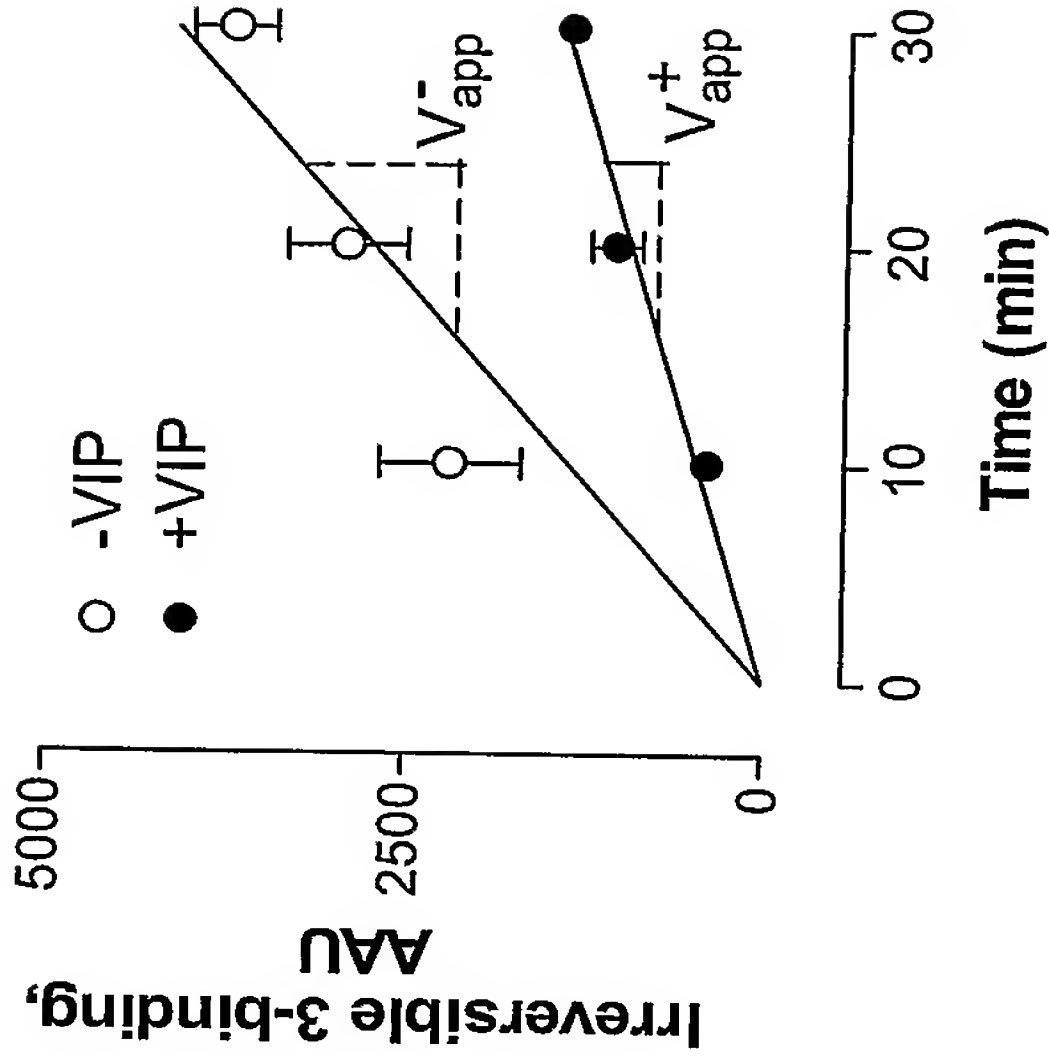
Fig 27
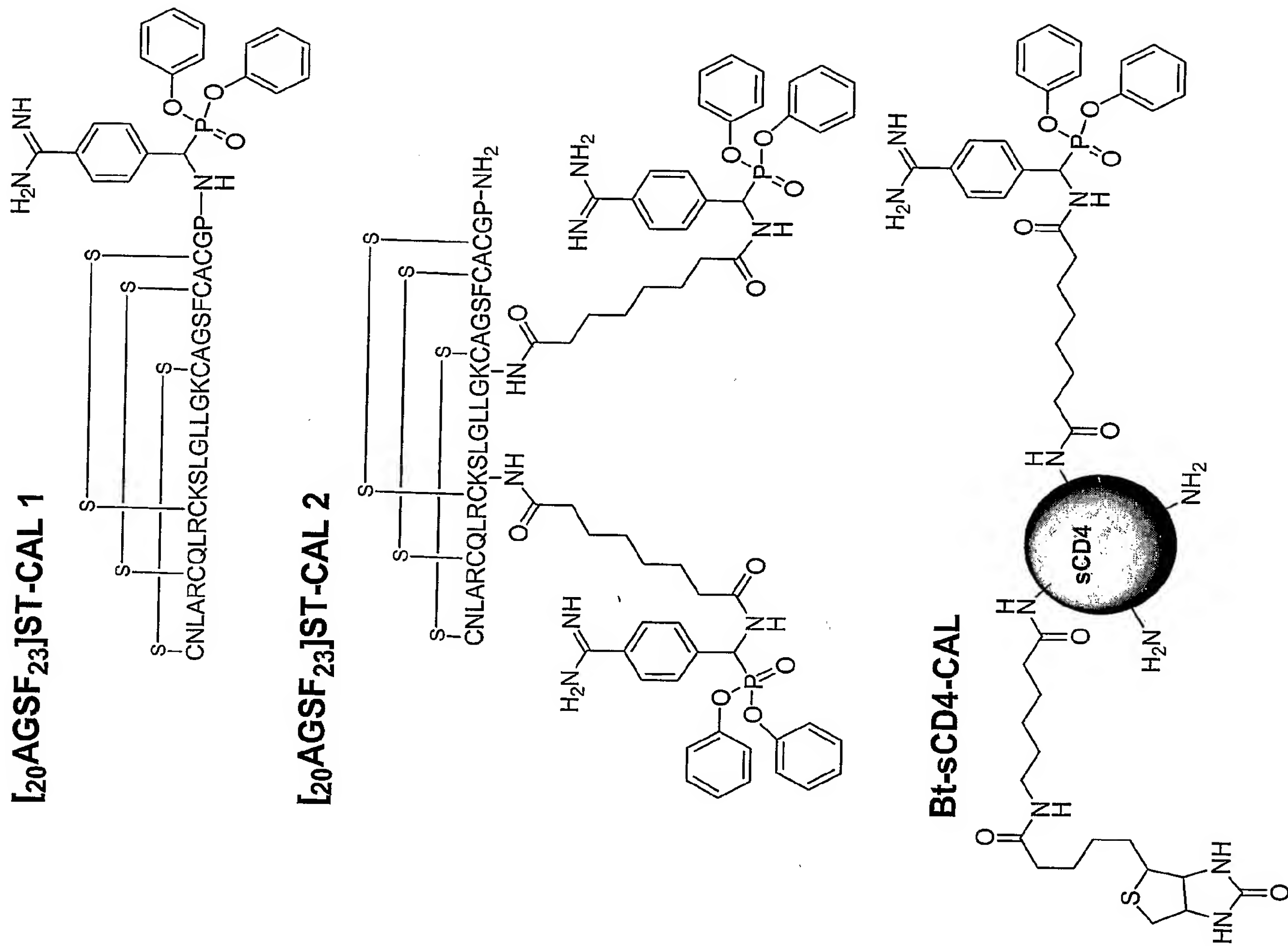
Fig 28

Fig 29

Fig 30

Fig 31

Fig 32

Fig 33